



To the
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Ins Jay O. Roads

Pottsrille, Penna. April-1-1943



THE COAL REGION

of

SCHUY KILL COUNTY, FEW SYLVA IA

an distorical and Statistical Deview of the Coal Trade

by

Jay Oliver Lords



THE COAL REGION OF SCHUYLKILL COUNTY, Pennsylvania is a new book, but one you can neither buy at your bookstore nor borrow at your public library.

It was written by a Schuylkill County native and mining engineer, J. Oliver Roads. His widow. Mrs. Catherine Matz Roads of 1339 West Market Street, has had four copies of the book typed and bound, one of which she has given to the Pottsville Free Public Library.

Mr. Roads spent the last months of his life on this volume, which brings under one set of covers not only a great deal about coal lands and coal companies but also about this County's early railroads, iron works, and canal.

Ghosts of many by-gone years stalk through this record, and even in this paragraph from his introduction:

"In collecting and interpreting these records of early mining, the author has compiled historical facts and dates from the early engineers' maps and field notes of Allen Fisher, John Hodgkiss, P. W. Sheafer, Peter Simpson, John Lewis, and from the later engineers—Quilitch, Col. De Saul, General Fleasants, Harris Brothers, Symons, Geary, The Philadelphia and Reading Goal and Girard Estate records, with the additional information duoted from Rodgers State Geological Survey of 1858, and the private records of the writer."

Many people hereabouts quote Franklin B. Gowen's, "I practiced law for seven years in the County of Schuyl ill and in all that time . . . there were but



three men who ever retired from the business of mining coal with any money . . . Every man's estate was settled by the sheriff before he died", but this book actually gives six solid pages of failures and sheriff's sales, in fifty years, with the names of the bankrupt businesses.

That our bootleg miners were not the first to suffer from the middleman is proved by its pages, too, for it says in the old days "twenty-five percent of the value of the product was paid to the middleman for passing it through his books . . . five hundred and twenty thousand dollars a year for doing nothing taken out of the mockets of eight or ten men".

Free trade for English coal, mine strikes, terrible mine accidents, depressions, lack of canal boats--the coal-trade reads like a hundred years of headache.

However the coal got mined. There are tables here to show it. The region even thought it was going to mine iron ore, too, at one time. That was the locally famous "black band ore" boom, almost forgotten by other books as well as by those now living in this locality. But Mr. Road's account tells of that excitement in 1835 and gives the State geologist's analysis of samples from the Mt. Laffee, Guinea Hill, Zachariah Run and other mines where the ore was found in the upper Red Ash measures. Hope died hard in the breasts of Benjamin Bannan, E. W. McGinnis and Samuel Whitney. Even now, at Wadesville



and Port Carbon, are two openings still known as "the Black Band shafts".

Mr. Roads cites, also, a load of coal long before that of Necho Allen or Colonel Shoemaker. He says he found this on an old loose sheet of paper in the P. & R. C. & I. Company's vault, and mighty interesting reading it makes:

"During 1798-1799 Bartlett or Barblett was sent up the Schuylkill River to inspect timber for spars for the French Navy. On his return to Philadelphia he took with him a load of coal down the river (no mention of quantity)."

Twice in this County's history the great white pines which once reared lofty heads in our valleys have again stood stoutly up to witness to two early but once discredited events in our pioneer history: this first load of coal and the massacre of the Neimans by the Indians in 1780.

This region will long owe grateful thanks to both Mr. and Mrs. Roads and to the P. & R. C. & I. Company archives.



J. Oliver Roads, geologist and research engineer for the P. & R. C. & I. Company for almost fifty years died at his home, 1339 West Market Street, at 9:30 last night after having been ill three weeks. He would have been 75 years old next nonth.

He was born in New Philadelphia, the son of Mr. & Mrs. Jacob Oliver Roads, his father having been a pioneer coal operator in the Shenandoah area. He was educated at the Stevens Engineering School, Philadelphia, now a branch of the University of Pennsylvania, and upon graduation followed construction and mining engineering in New Mexico, Colorado, and Claifornia.

Returning to this region during the '80's, he married Catherine Matz, of Pottsville, daughter of Sheriff Matz. Soon afterward he entered the employ of the P. & R. C. & I. Co. as a mining engineer.

An accomplished musician he was a member of the Pottsville Symphony orchestra, under the direction of Prof. Frederich Genard, for many years. He played with equal ability a cello, zither, and piano. His maternal great grandfather was a aide to General Washingt during the Revolutionary War.

Mr. Roads was a me ber of the Episcopal Church, the Elks and The Schuplkill County Historical Society. Mild-mannered and genial, he had a host of friends throughout the county. He had been in good health until stricken ill a few weeks ago.

Surviving are his wife, two daughters, Mrs. Robert Garrett, Frackville, and Josephine, at home, a sister, Mrs. Thomas Downing, Pottsville,



Papa always liked to recate stories of the wild as at the 80'3 - expecially in Per Mexico where , came in contact with the savage to onquelle Editus. Geranino was on the pour-sath. icomed at an old spanish Missian outside of gute the The monks much listen to basas Justing the gither might aster minut in the satio. apa met a combou in View mexico in chese will daily and the two it oring men begane warm wends. When sasa returned east, the Friendship aded. The control disableared. Dut in the ian stesken up to suga, I'm grok inst she mie. I'de kund I on aut where Tonasi " the said. ere is was sasa's oris Griena the construit state is the Show. To un ger a state for the stile mits the on riduid with the poldwis in the East selve her the rayous attacks the stage-coaler. The o old dreines spent a romatitue day logeros una is sent to the rain mile the Friend of his I out us said "gordle dirlin lines seut said, "raid is their round salls.", Hort of a villains with inclident, isuit it i



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In compiling the ristory of the Coal Trade of Schuylkill County it is not intended to present a literary gcm but a simple record in a more or less statistical form, of the rise and fall of this Trade.

With this purpose of preserving records known to exist, records which will finally be lost, especially in regard to location and shipments of operators from the different collieries now long forgotten and entirely unknown to rising generations, the author has carefully perused and studied many documents.

In collecting and interpreting those records of early mining, the anthor has compiled listorical facts and dates from the early engineers' maps and field notes of Allen Fisher, John Modeliss, P.M. Sheafer, reter Simpson, John Levis, and from the later engineers - Quilitch, Col. De Saul, General Fleasants, Harris Brothers, Symons, Geary. The Philodelphia and reading Coal and Tron Company and Girard Latete records, with the additional information quoted from Modgers State Geological Survey of 1359, and the private records of the Triter. This Loven's Listory of 1343 was largely taken for the legends, Canal and Reading Mailroad, which are the note all historians.

In sufficient the Coal Trade Conditions from 150, to 1.52 the author quotes from Carey's "Meditation on the Coal Trade" and from Bords articles on the same subject. From 1350, the conditions involved in Coal Trade to the Mistory of the basis in 1.73 are nucted largely from penjamin pannan's coal statistics of the varieties accepted by the trade as authorite. In our cultar the authorite-



Archur sheafer who so gener well a rmitted accordence volume co-cords of his fether, the late P.L. deefer.

Shipments from the collieries onnexed to each charter are in a number of case, incomplete carecially in the early reports. These reports relation rincipally from coal transported on the line illed and solu likill Haven, Mt. Carbon, mill Creek, schuylkill vallet and Little schuylkill lateral railroads to the landings at schuylkill lateral railroads at schuylkill lateral railroads

Local sales were not reported until 1303 when they here denerally included in the shipments. In some instances where a company or individual operated several collieries, they reported as a total the shipments of their collieries. In the separation of the shipments from these collieries, the chirments here based on independent reports when available at times and applied to the totals. While this may not be strictly correct to the several collieries affected, the totals, however, are fairly reliable. In later years discrepancies may arise in the annual salments, but there are the to the reports of some companies ending the year on december let and others on language late.

Jay Cliver loads



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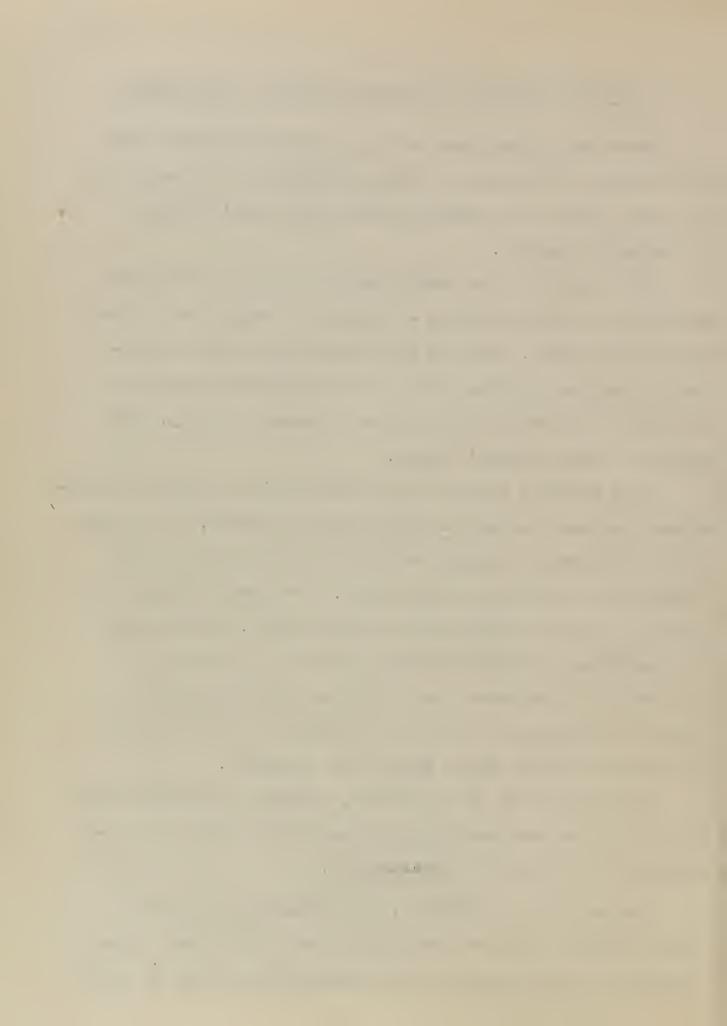
There was a time when coal was entirely unk own, when this product of the acons of time lay busied in the depths of the earth, ready to be develope into the world's richest and greatest industry.

The history of the development of cost has been brief, spanning but a few centuries -- which is a short time in the story of the world. Yet the coal trade has reached tremendous proportions, growing from the feeble introductions of the fuel to the many peoples to the gigantic industry, the bulwark of many nations! wealth.

"The earliest record of coal being actually mined for commercial purposes was made in 1259 when him; enry, 111, granted the privilege of digging coals to the "good en" of Lew Cartle in the vicinity of that place. The early workings were no doubt of the simplest and rude thind. During the fourteenth and differenth centuries the use of hit coal as fuel gradually increased, especially as there had been a wasteful consumption of wood in the country so that wood for the purpose of fuel became scarce and expensive.

The use of coal in the cities, however, was at first met by that ropular and ignorant prejudice which assai s all inovations of the king whom ancient use.

In the reion of Edward I, the inhabitants of London loualy protester against the growing use of coal; and a procession of the thionarch in 1506 prohibited the use of coal



in London. In 1649 the City of London petitioned Parliament against the use of coal. Not withstanding these popular tre-judices and royal proclamations, the consumption of coal still increased, and as more convenient modes of burning it in houses were invented, its smoke was greatly abated until by degrees it gradually began to supercede the use of wood.

In 1699, 300,000 tons were exported to London. In 1740 iron works were established at Colebrookdale in Shropshire, in which coke produced from coal was successfully used."

- Rodgers First Geological Survey.

In many parts of the United States, coal was found; and as early as 1670 references were made of coal deposits in letters and documents of the early explorers and settlers. In 1762 william scull, a surveyor of that time, had extended his surveys beyond the Blue Mountains. His map of 1770 indicated coal deposits at different localities between the schuylkill hiver and Swatara Creek in Schuylkill County. One of these surveys was made for Adam Sweigart in the vicinity of Lorberry during 1762, of which a copy of the receipt dated October 29, 1762 for surveying his land, is on record in Fisher's Field Book No. 6 in the vault of the Philadelphia and Resding Coal and Iron Company and which is hereto attached.

"Received the 29th October 1762 of Adam Sweigart the sum of three pounds four shillings for surveying 145 A. 70 Pr. of land over the Blue mountains in pursuance of a warrant to John Wartz.

5.4

signed - .m. scull

A copy taken from the original receipt may 17, 1 37

Sam'l. B. risher."



A survey of lands in the vicinity of count Corbon, was made on Tovember 8, 1749 "for the use of the Londrable Trourietors situate on the Schuylkill Liver containing 646 acres and allowances. Warrant dated November 25, 1748 and the Patent, Larch 5, 1814" - Vol. 84 Fishers Note Book, F & R C & I Company Vault.

During 1798-1799 Bartlett or Earblett was sent up the schuylkill giver to inspect timber for spars for the French Ravy. On his return to Philadelphia he took with him a load of coal down the river (no mention of quantity)

- Loose Leaf in P. A. C.: I Co. Vault.

In the year 1775-1776 several ark loads of coal were conveyed down the Susquehanna Liver from the Wyoming coal fields, and taken to the United States armory at Carlisle in the manufacturing of fire arms. It was in wilkes-perre that Judge Fell in 1808 first used coal as a domestic fuel. The following excerpts of the early history is taken from the bowen's listory of 1848:

ville and at different times searches had been made; but the coal found was so different from any previously known that it was considered atterly valueless, more estecially as no means known could be found to ignite it, and explorations were abandoned for a time. The first account of coal in the Schuylkill calley was about 1750 when secho Allen, a noted hunter who lived on the proad countain discovered stone coal at the foot of the countain about at. Clair.

"Tradition says allen had camped for the night under the shelter of some overhanging rocks, and having built a fire on-



buring the night when two wood should have burned to concers,
leaving the fire low, Alten was cur rised to be awalened by more
heat about his less that was confortable, but he was attenuable to
find the rocks a gleaning mass of fire.

"Such were the facts as they were senerally given by tradition. Several versions of the stary were told by the association
of Allen, but they were all su stantially the sale. In 1795 a
blacks ith by the name of whetstone chance whom some cost and
use it successfully in his shop. Its success induced others to
also for cost and when found, attempts to burn it roved a failure."

These fultures to ignite what they closured as cool, were in all probability due to the fact that it was nothing but all e.

in the existence of coal in the environs of rottsville, one of who was judge Cooper through whose influence the search for coal vas continued under the supervision of licholas Allen.

vere the lesses. Foths who prospected for coal slows the Old Bun-bury word, but were not successful in mondoned their search.

Fillian Lords, so nofter the lesses. Letts terminate their explorations, because the rotation of the greater part of the land in the neighborhood of Port Carbon on the Schuylkill liver.

in the same pear took a considerable quantity to Filledelphia.

Infortunately, he was unsuccessful in convincing engages a the value of his coal on was forced to sell is lands and abandon distroject of making a pusines of tin no coal.



abandoned for some time fitter this tarm, and then trivine until 1.00 when controls tound by return the tenth of the later of the value, for the on the pavie Berlin, a blockwhich, of the next porthood, with conflete success; (the hid stander on sole cood coal) and from that the stone coal greath results and the periods of the pohylkill valley, as it had, long before, grown in favor with the blocks withs of wyoming and the purchases.

"In 1310 a chemist made on analysis of the coal cross tris region and was convinced that there were all the properties sultable for combustion. He erected a small Turnace in a vecent how e on ro totreet in rhiladelphia to which he ambigue strong blant and obtained an immense heat from the cocl. " his exteriment slowed roof of its quality as f vorable for its introduction as a fue in the fril to secure its ravor of he peo c, yet nich was no me n ice against the "rocks", that nobody world account intereste . The corre later, in 1-12, volonel George Thoe a er and Ticholas ... uiscovered coal on a liece of land which the had recently purchase at a place could wenterville about a mile north of lottsville. The mines severs weron losa of cost and too. it to lottsville of the a market, but no person could be induced to but this coal. is rtner, icho s Allen, occase di couraged ind solo il interest in e Is no no mine to is ertner, but volonel shoe ster wing reconcil some slight encouragement record in this elable con inted the ining of coal.



"Liter linin conturned un belon or con end gocecod with it to miladel his years of her one finding a moret, but the exerience of the cold not to it stone coal was ver unfoversale at that acriod: the Proquent and norsistent attenut to impose roc s on the . or so held her rules tier indination, in Colonel Shoetiker was denounced as I in ve and swingler. Colorel whose arer permister, owever, mu mirrore of two losas, me to write and azzard, or the raining na .ire works at the ralls of the chuylkill and the other to measur. mellon and pishor of the Delaware County tol ing fills. The remaining locus core eiven away or disposed of to placksmiths one others who romised to try it, but the very men to whom he had liver bis coal, obtained a vrit from the aut orities for his treet es an impostor er swind er. Colonel Joensker was Forced to beat s h sty retreat and only saved bireself removerace vien by talling a liuc circle rreuna Philodelp i on ris ret ra o c. In re meantime, are mellon and some of his men who ere anxious to succeed in crange i coal, spent a woole formin in the increase the and rai e a hert in one of is furnces. The record no pole it, in stirted it u , blet u on the surface through the oren furnace doors, with great eraistency but all to no up ose. Colonel thoe rer's rocis would not birn indition the their the erecte est ves even oned. Out innertime has arrived and the discoursed men the furnice coor; and left. Leturaln from dimer to the devel time, all ands are astronach at the henotenon which they behalf. The Turnace coor cere red bot, no the vole furnact in dancer of being melted dein with a lest never before experienced. In o lin



fire had never been agen in the parace crore. From the lene" coal found friends in this deliminant too griup "let it lene" come the receipt for its use.

"Messrs. unite and azzard also succeeded, about the same tile in using successfully the load of could be taken from bolonel Sheemaker. The result of these successes in burning anthracite coal, soon fave it a good resultation and remove the rejudice of the eocle and arone the more intelligent persons, it. future use as a fuel was alseed regood doubt."

Such vere the facts of Colonel Shoemaker's excerience in more cting is ten loads of coal, a talen from Ali Doven's review of the Cool Trade 1848.

be vily in the coel and in the vicinity of ot sville, tecale seeds interested in the consumption of coel in the manufacturing centers. Most 1920 no made several effects to use interested coel for steam uprocess to his Lead cores of biladelphia at was only artially successful. The first successful use of antimacit coel to be utilized or senerating steam was used in 1925 at the process of the process of adaption of coel for this purpose same a remain a condition of coel for this purpose same a remain a condition of the consumption of the constant of the



Let increase very visit or resolution of villian lynn sisted by a recommendation.

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time the front sixty to sixty-more his, equal to about three consoft metal. It was an important fact that in character the stack not no but interscite coal and iron one was used. The exection of this furnice was accomplished through the efforts of and ratherson, assume, of rottsville, to from the carliest distory of this rection, he been identified with every account its onward regress. Later in 1 -4 Mr. ratherson but in place the st. Carr furnice after several years of decression in the region. (Carey laters)

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delibia one adjoining counties slowly began to discopeer. Landam timber on cord wood at this time was solart and retes; and operation intersection the latter was solart and priced a glo.00 a cord.

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gation Company was incor or ter. In the no privileges of error mining or train. Its more object was a system of the critical instruction of the remain country. James mediation, John Lott, Jamiel Graff, George weith country and John mulloney were consistened in John Country to raise 1000 shares of stock at \$50.00 each in Or.igsburg.

The work was started and the first and was completed with the necessar; inject locks at nount Carbon in 1817. The following year a freshet swoot away the day and locks. There, however, were rebuilt by an engineer named Conley, with his own plans which later withstood the floods of 1850."

-mach's istor; of 1 31.

canal which was 103 miles long. In 101 12 we sufficiently comleted to ser it the assemt of severs of the order inth combined first longing on the canal was built at lort termon in 1921
by thomas mid way and Clayton hard on land surchased from abrabia, not. Tolks amounting to \$250 comprised the receipts for the first season. The shiphents here 265 tors in 199; 365 tons in 1890;
1072 tons in 1921 and 2-40 tons in 1822. From this date of ALES no records of the tolks are evailable.

not in a favorable condition for the same e of mosts. This set due to the inexperience of the same in a nall building or force



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ob. truction of 11 inds in the electric field ought were breaks in the bonds of the canal one the fail that the masonry in the locks, and to poor foundations. In engarging the cans, in 1.25 t e foundations for the northern and out orn octs at impour vere laid on a send cotto, that give we in law, fro the current of s rin s and can't vater has inc through the sames relottor lining under the floor of the locks. The setting of the mesonry required to complete removes of the feiting mesonry ad excavation was sun! deeper to a rock foundation at a cost of 07,000. the reviluing of the harburg locks was on y one of number what remire rebuilding and was a heavy arain on the resources of the Commen, the form on the form neture by a confect him a certain to requilling of the locks, and the far west in construction not on y reteried the process of the hoats but make the custness ian crous, incertain and ubjects the complete creet extense for retairs. The lividends to the stockhold as the vary smill. Frevious to 1030 a givi end of 1% vas declined, but use by there was color state end of the usiness scason. - avication le or c

he forlowing a ount of convers shipped to fill the from the line in the vicinity of Pottsville.

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13-7		33.560	ŧi
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Pri itive. The contract value of the first o

in 1825 the amount or coal sort do n the scholler was 1800 tons; that of the Levich 21,10 tons and on the Susquehans no secount is available. From this year, the behalfill coal trace me be asted. That of the Lehigh having commenced live jorns reviewel. the canal having been enlarged in 1825, or to mass posts of 4 to by tons capacity, has the pecinning of a hosterous prainces that resched its maximum bonnage in 1942, bon of 1.1 dollari montes in a i ro a sitered the die d as a competitor to be charlill aviation Company. The asilroad Commany, in ruler to divert tenna co ro we conal to its reilroad, reduces the cost of transmention on as exim near, inscede in the coral tonn to. he aviation co in , aware of the usnicr of locand a er court of it winner, to I ULC neces by steps to regin enlyrge and I prove its decition & r visticn. in 1 47 se svission of my reconstructed their entire . The conflict sciuned on the total tone. was increased, so solo uses bonto or lot to the time on es cit. The number of the trans a front 1 % 1. 11 af then the re loc seed a lift and vere to per coting to f



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the company, there were are trivery omerter. At least it rever a does 900 ft. long, 60 ft. viac and 6 ft. dear with the rail 17 ft. high above the water, churt of the least of the majorition Commany. This does was careful of shipping 250,60 tons of cold arms the newson. It art of an eleastic to the majorition constructed enterity limiting, end range docks by loss of a least of the color, for the range and of the deep, the rail leavest all ft. a over a vector with churtes and faller, the rail leavest all ft. a over a vector with churtes and faller, and both sizes. Its leading was a paid of the churtes and faller and both sizes. Its leading was a paid of the churtes and faller and both sizes. Its leading was a paid to the churtes and faller and cold tons carried the season.

at int Carbon, Nic landin Landwood were collected so at

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ary seems, the laviestion Company purchased a trick of land on silver creek and constructed a large reservoir to a variable finition of the two landling lands and on the latter than the latter than the latter than the second and in 13th, insured a samply of white to correte the circumstance.



The trovel o viceol crate in the semiliar cinve ver raid, the use introduction the country williams, and crea ('ro 79,975 tons in 10:1 to 5.5,54% to s in 1.42. Uf the tonice, the canal himsed 584,692 tens and the first shimmet a the reading wailing day s 250 tons, that raidly increment to 1.360.681 tons in 1847. by the collargement of the control of the same arte, it shipments and for len out to 12,005 tons showing the rapid inroad on the conal tonnege of the railroad, due in s great each to one executo colla on the charlant also the slower move ant of coal to mar ct. I c con ctituon between t c Anilrosa na vanel continue until 1047 when the erains record company, secure the folly of continuing the corretition with the Havination Company, oro osed an a idrile arrange nt y ich the tonne e fro the schuylkist re isnator to equitably esvece to the mitted benefit of both commiss. The programy, or ele if we man reach the carel are its recombraced landings, conceard 400,000 cons of coal ton the receiving ger. The navistin Company rejected this of er and in it is int :00,000 tons a colotted a their share in the compace. I'm the in rantel, the ne offactions for broken the und each contract n The their or resecut. In 1 49 in hee en in entere 1700 between the ritrod of a hal to be the in which is constituted transport one-third of the coal connect, this we estimated the er at 600,000 tons, at the setue of the trans office of 459,205 tone. Ic to sere djute: 149 to : naver c 1.70 for ton the reilrost and 75% or tor by the cent.

e crit dem ed the record and are recipilar menuscians.



valley of the Schuylkill. Property of a vast amount was destroyed. the boat men suffered heavily by loss of coats and the coal operators by the loss of drowned out collieries. The damage to he Schuylkill Navigation Canal was heavy. It was not until the 28th of August that navigation was restored. Only a few days after the resumption of business, on the 2nd of September a second flood descended which destroyed the Schuylkill Navigation for the remainder of the year. The destruction of the canal was increased by the bursting of the Tumbling Kun reservoir, which greatly increased the flood volume that swept away bridges and dams in the Schuylkill River. The river in places rose twenty-five feet above its ordinary level, covering the Reading Railroad tracts in places to a depth of three to five feet. These floods damaged the canal to such an extent that the repairs to the canal and the rebuilding of the many dams and bridges, swept away by the flood waters, exhausted their resources and the Company was on the verge of bankruptcy.

At a meeting of the Board of Directors of the N vigation Canal Company, they passed a resolution that, "Whereas by reason of the devastating floods the said Company is at present unable to meet its liabilities, and the creditors thereof have petitioned for such Legislation as will justly and equitably protect all creditors for their respective claims" - Navigation Canal Report 1352.

It was several years later before the Company become solvent again. The extension of the Reading railroad's lateral lines into the region and the facilities afforded to the trade by it, forced the Navigation Company in 1359, in order to compete with the mailroad, to furnish its own cars in which to transport over the Reading tracks



vide the necessar, spin are includes.

come my and were on the scale to recommender from wheel cars, but to distinguish them the Lavigation cars were minted to a long the recommendation of the reading cars were black. In 1365 the ravigation domain built their ears from their even action but still maintained their period color. "In 1369 the Ravigation Company desired to their own cars to the reveral landings:

250,605 tons of rort Urbon in Fole Alto

25,537 " " "t. Car on

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-Darmin' Office of 500 in Le.

on may 12, 1370 the chiladelphi of the coduct weight do un-

stant wrong of translet and expense to the principle of the Lorenty in eaping free the carel and does from its demaits. Finally a sut 1 % the Fort Care of Landing was abondance for the Folo sloot landing. In 1973 the same cause contexted the bender of the context of the Folos. To be to be and the terminant of the context of the chapter and the terminant of the context of the chapter.

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was built to reach the higher elevation at the collicries. Steese and Oliver were operating on a vein in the Red Mountain near the head of the incline plane. They commenced operations before the completion of the railroad, mining their coal and hauling it in wagons to the Union Canal. They sent to market nearly 10,000 tons of coal all of which was hauled over rough wagon roads.

- Testim ny of James C. Oliver in Sheriff's Levy on Donaldson Coal Lands in 1851.

In 1855 the coal taken from the Lorberry mines was 5500 tons that steadily increased to 20,500 tons in 1840.

The Managers of the Union Canal Company report for the year ending November 1830: "That the Canal opened on the 27th of March, 1330 but owing to the state of work on the Schuylkill Mavigation Canal, no boats passed upwards until the 11th of April. The amount of cash received for tolls from November 1329 to the 1st of November 1330 was \$35,153.32. The tonnage transported on the cenal during the year was 41,094.tons. The great dam constructed in the Swatara Gap is about completed and when full will cover a surface of about 300 acres."

The first boat dispatched through to Philadelphia laden with anthracite coal from the mines of Leh and Hoch in the Swatara District, left Pine Grove Docember 4, 1830. In order to meet the increasing coal trade the Union Canal was enlarged in 1851 to pass boats of 30 tons capacity. During the year 1850 and additional large reservoir was constructed on the Little Swatara Creek to insure a full supply of water during the ary season. This was considered the largest reservoir in the state at that time. The freshet of 1862 carried away the breast and all the dam along the



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though a very primitive vatorya, who the become of coal sine in the vicinity of rottsvile. The correctors no had been asking improvements at their sine in anticipation of the conal began to ship their coal places over the coal bean to ship their coal places. A ongle of include the coal bean to ship their coal places because of ship their coal places are walked to ship their coal places.

"The First ark loaded with collars some intermed the or for all more second ark for \$19."

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Increased correspondingly. In 1822 there were mined and shipped 1240 tend. The literates in terms of from 18 to a recourse of the action of transformation than the roll route ten in use. It lists the rosds had been improved but were not very satisfactor. Another Pott conscived are idea of laying a track from 18 times love fort. Uses to the canal masin on in 1829 he in the first track from the constitution of the constituti



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The common railroad constructed and slow of the first transportation from the construction of a second construction of the con

the schuyllill valle, mailton controls will 3, let mich has been in operation during the greater and of 1320 consect at rort car on and was located on the west ide of a contribulible liver (now used in and of the state ighter) and cross out at acceptance, it is true of 10 likes. There were to better in reference intersection it. The main line cost 555,000 cm the lawer. \$10,000.

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inc wilrosa Contant for 908 ters.



These planes were in continuous operation until abendoned January 1899.

commencing at the Mt. Carbon docks or landing, it extended up through Pottsville to the two branches of the Norwegian Creek, the east branch to Mt. Leffee and the west branch to Wadesville, a total distance of 9 miles with a number of lateral lines under construction during 1831. During 1831, 26,940 tons of coal were shipped over the road. It was rebuilt during 1844 and 1845. The grade and alignment of the road was such as to permit by gravity the loaded cars to descend from the manes to the landings at Mt. Carbon. Mules were employed to haul the cars back to their destination. Each trip descending, carried a car loaded with the mules to haul the return trip to the mines. It was not until 1862 when the first engine was put in service by the Company.

On March 5, 1800 the road was leased to the Philadelphia and Meading Mailroad Company for a term of 999 years.

The Little Schuylkill kailroad was chartered with supplement april 14, 1323, to construct a railroad from Fort Clinton to Tamaqua, a distance of 22 miles and was completed during 1831. The road was originally intended for locomotive power, and an engine was purchased in Philadelphia for that purpose and hauled to Port Clinton on a wagon that required sixteen head of horses to transport it. The engine proved a failure due to the light construction of the track and after several attempts to use it, it finally ran into the river and was acandoned.



It we not not record rebuilt in less than 1000movives yere and to a like final cost of the restriction was 2005, and the rest transfer to the restriction.

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The lottsville and Danville asi road Company was incordorated under the laws of remnsylvania April 3, 1326, and the first survey of the line of mone remobins on was made under the direction of the Canal Company was not remosphered out in the direction of the Canal Company was revised in a later surve, made in 1851 by concare modinson and Francis at Mark, incliners for the Company, and which was ado ted at a meeting of the Company to answers on October 17, 1851.

little less than 47 miles; but as it was contemplated to terminate the eastern enter it at the bount Carbon mailroad 3 1/2 miles north of rottsville, so much of the road was the meac. From abbinson in may 's report of Catoo r 13d, "the woole distance for Junbar, basin to the mount Carbon Mailro of the competence of carbon Mailro of the same than substitution manuer, graded for a double track of the simple track and all measurer turned a laid down, The fer location is entered with necessar, turned a laid down, The fer location is entered to the necessar, incline there, statio are mover and the execution.



for the sum of \$675,500, if double track is laid \$148,102 additional or \$825,602.

On the adoption of the report, a meeting of the Board of Directors was called and a few months later when the issuing of stock was authorized and subscribed for, the first installment paid, managers were elected and work commenced.

Under mobinson's plan the planes were so located that the necessary power to operate them was to be supplied from the neighboring streams as a substitute for steam power. The machinery by which it is to effect this being designed and with locomotives operating the levels between them, he claims would insure sufficient power for the greatest trade which can be anticipated."

The road was finally completed to the Mahanov Valley in 1835 when 4,188 tons of coal were shipped over the completed part of the line to Girardville. During the following year, 1836, 13,347 tons of coal were shipped, and the road abandoned. The grading of the road was partially completed on parts of the line west of Girardville when abandoned. The amount of money subscribed was \$800,000 all of which was expended on its construction. The question of whether the water power as designed for operating the planes was applied and proved a failure is not known, but the legends of the road state that mule power was used. In the construction of the road, due credit must be given to the engineers under whose management the road was built, as the topography of the country through which the road passes is rough and rugged with steep pitching mountain sides and heavy natural rise in the valleys.

At the head of the first plane, ascending from the Mt. Carbon



reilro of resville, of the land in length and control of in dee cuts, was driver a cavarage in the court of the care constructer to the record lane at Darmater, root cal a continuens line of fine masonry for a distance of the one if a lais the tennsylvenia hai reco cut through is contly, in its construction in 132, and at that time, after the lense or cars, it was scandin intact, without in asterial refects a min te on rerind of ne tect. On reacting the cooperation, of Derhatter, the level to the foot of the chir plane was also te steen hillsi e and through two heavy cuts of about 40 ft. in cight with retaining wall of masonry at record intervals along the cillsiae cottongs. From the head-of the third plane there were more on such difficulties in concurrection. The level from the last place to the need of the grac ville level was simply a long file, of about 10 ft. high, alone low I in surface at ud our Creek crossing. Te descinding place ran into the Lahanoy Velley, the head of which was in close proximity to the masonry are ander the leading wailrea trice, neir the head of the maleno; plane. The subcriptions to crousville in conville gilread and life of the rem s lvarir e istri re loance and rum lead 200, ot

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roso, was largely in the montal in surthering the more of construction is arrection for order of every of the exact in supplies notice.



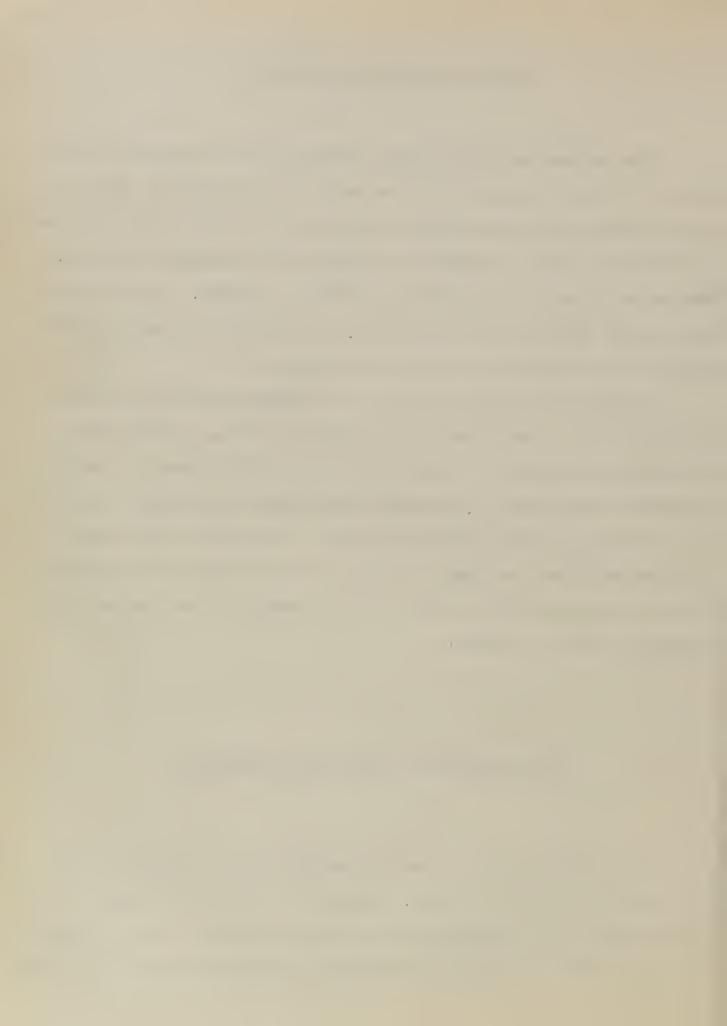
The Swaters and Good String Mailrose was character will, 1851. The road extended from the end of the Union Good Mailrose, up the Swaters and Good String Greeks, to the new horses. Unlarch 25, 1341, its name was changed to the Swaters Colleged.

The motive power was originally so field by horses. By a supported to the aspect April 6, 1348 the Uniong local original over the supportion and Locamotives were classed in service.

In 1800 the road was lessent, the thilledelphia and wescin walled a longer, and later was obrehased if their in 1805 the relieved was extended to retain ever the light-of-way of the old a andoned union Canal, and became the revenous and the anti-principal the Philadelphia and weading wailread. The leganth and French the relieve that the road at Lebanon via line wrove, to its terminist modified, being forty-type diles in length.

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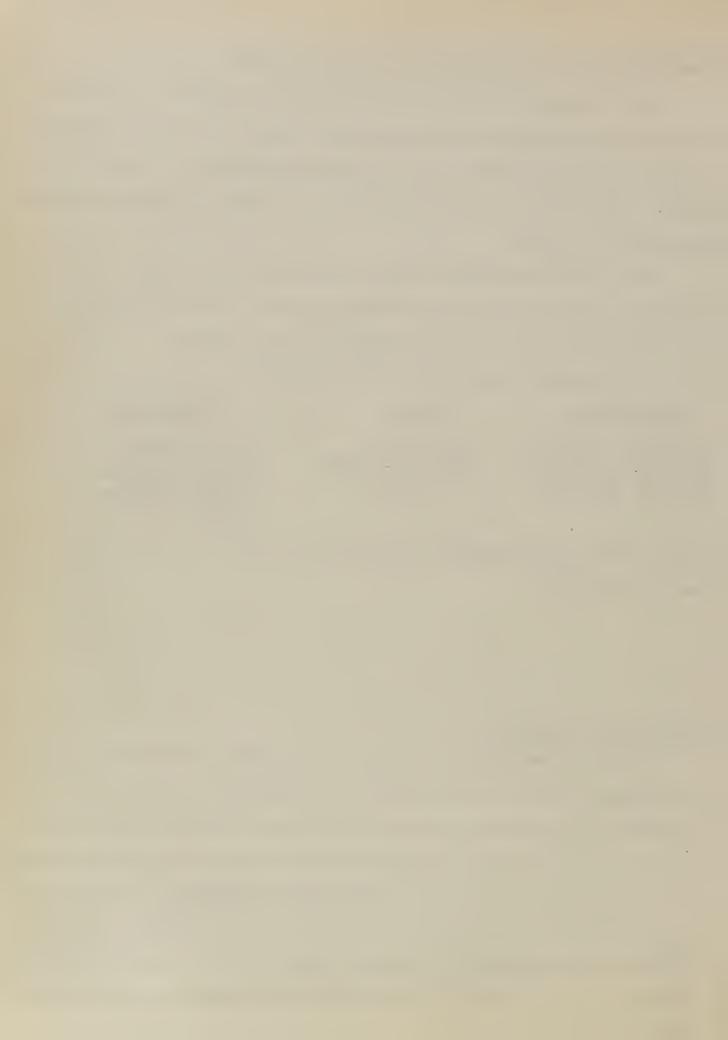
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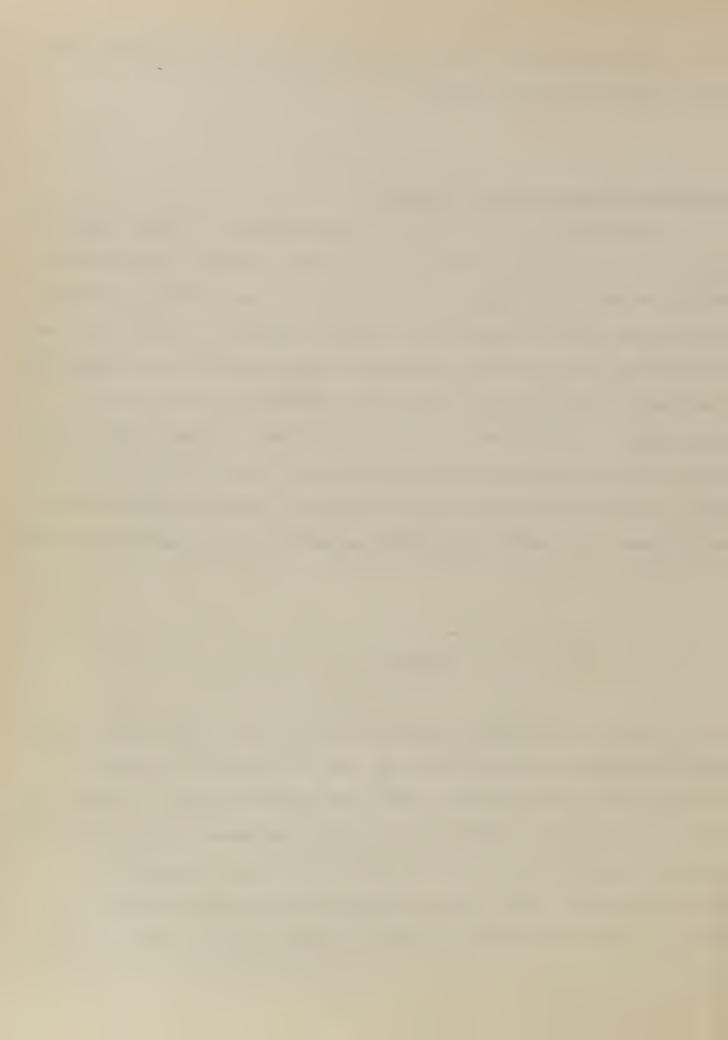
1366 it was merged with the Lehigh Valley Railroad, by which it has since been owned and operated.

mahanoy and broad Mountain Mailroad

The charter for the road was granted March 29, 1859. The road was built for an outlet to market for that portion of the Mahanoy Valley between the terminus of the Mine Hill and Schuylkill Haven Kailroad at rig Mine Kun, and the Little Schuylkill Kailroad at the eastern end of the Valley, by way of a plane 2600 ft. in length from the Mahanoy Valley to the top of Broad Mountain, at the town of Frackville. It connected with the Mill Creek Asilroad at St. Clair. The road and plane with powerful machinery to hoist the cars to the top of Broad Mountain was completed and the first shipment of coal from Connor and Company's colliery was sed over the road May 30, 1862.

MINING

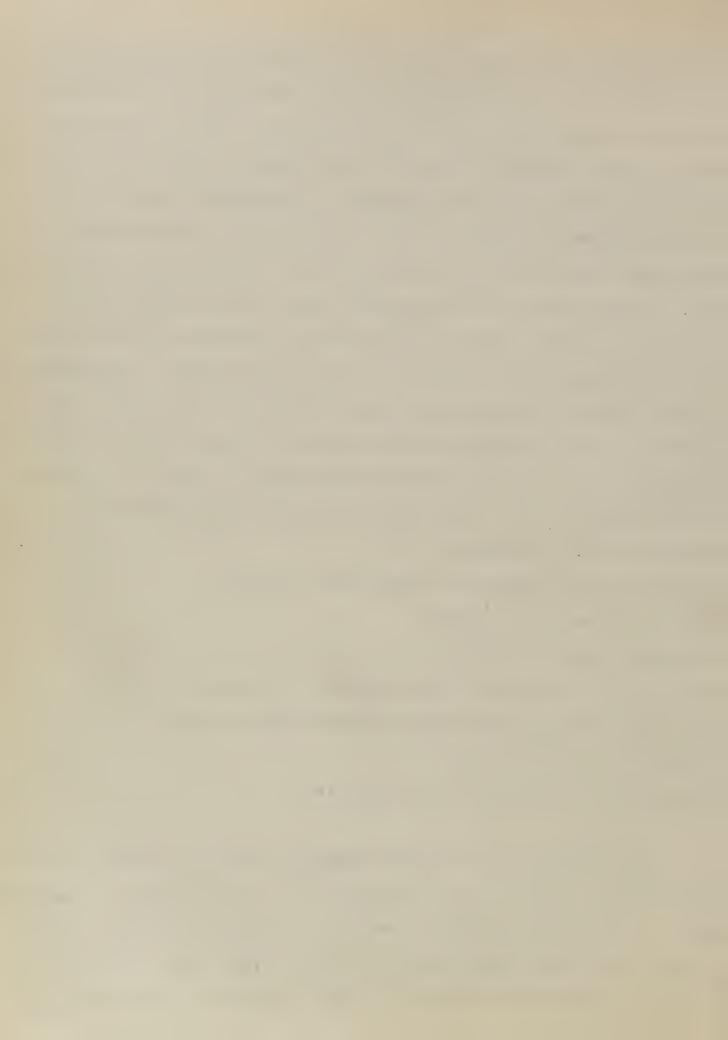
The few early mining operations during the period from Colonel George Shoemaker's initial sale of coal in 1812 had increased to thirty-seven in 1829, all of which were mined by drifts. Among the first operations to enter the coal mining business was the furcarora mining Company chartered April 6, 1814, which was financed for a large business. After opening several drifts with no available means to market their coal it was a andoned for the present. But



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the coal trade began to assume an imposing attitude.

During the period from 1825 to 1830 mining was further developed and placed on a more substantial basis, as the investors of capital became more interested in mining possibilities. In 1826 ratterson and Hubley opened a mine at Centreville, a short distance north of Pottsville. In the same year the famous kain Bow Mine was opened at St. Clair by Ulrich and Schrader, as was also the Flowery Field by John Philips at Wadesville.

In 1826 Frederick Hass began mining, being the original operator of the Eagle Colliery at St. Clair, now operated by the st. Clair Coal Company. Snyder's Mill Creek Colliery was originally opened by Neil Crosly during the same year, as was also the Chamberlain Colliery by J. & R. Young at Port Carbon. Ravensdale, east of St. Clair, was worked by Brooke and Potts in 1827, followed by the Mickory Colliery by Brooke and Woodside and the Sillyman tunnel by J. P. Wetherell in 1828, both of St. Clair.

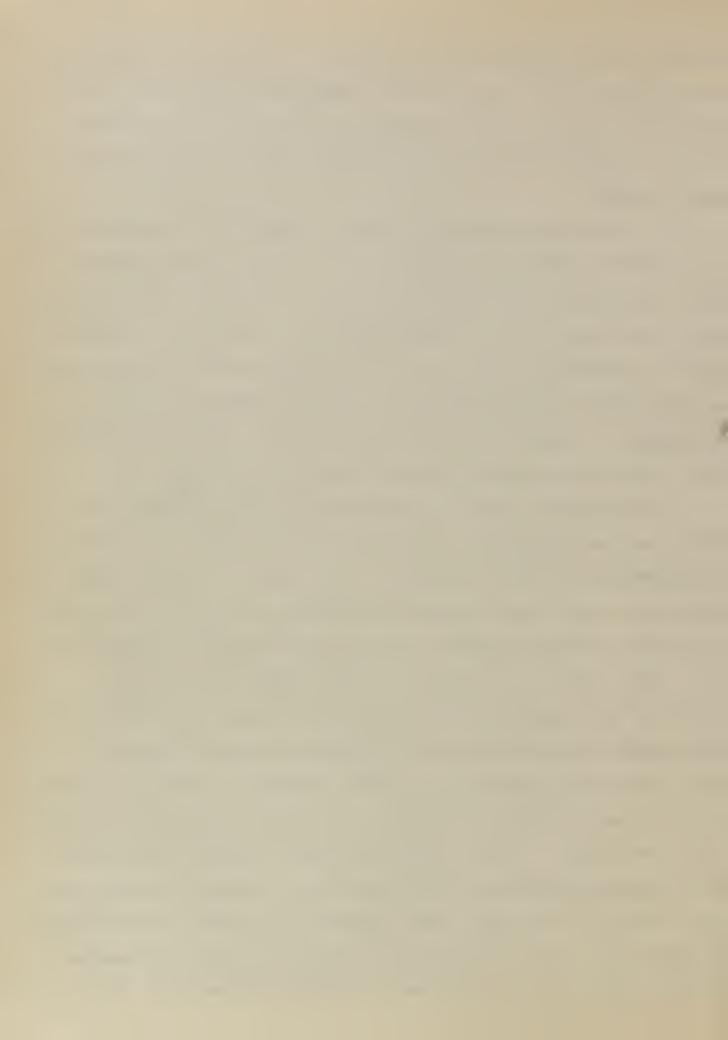
The Cente ville mines of kay, white and Comb, situated a short distance north of the City of Portsville, was opened in 1327. The Greenwood mine, on Coal Street, originally opened in 1323 by ----uckley. Gideon bast's black Valley mine, north of Minersville,
was opened in 1823, as was also the Silverton black Mine, south of
Llewellyn, by David Llewellyn. During 1 29 the Ph enix Park Tongel
was driven by wheeler and Meritt and the old North Mine by miller
and Mex, both mines at Phoenix Park, west of Minersville. Milnes
and Spencer, north of Fishbach, and ball's mine, operated by fromas
c. Milliams, both of which were opened in 1829. Ball's gengway was
connected with the Young Brothers' gangway at Port Carbon and under
the operation of the succeeding operators had the distinction of



shipping the coal either at Fort Carbon or Pottsville. Finkerton's tunnel at St. Clair opened by West, Hudson and Finkerton in 1830; the Falmer Colliery at New Philadelphia by Volney Falmer and the Buckville Colliery at Puscarora by Blight, Wallace and Lweing all opened in 1830.

The Salem mines, between rottsville and rort Cabon, were opened by the Young Brothers. Later that was known as the Salem or Young's Landing, it was operated by milnes and Haywood, who shipped their coal direct from the breaker into the canal boots. Wener's Tunnel at minersville was driven by the Diamond Coal Company. The Last Pine knot by John Offerman, the McGinnis Hollow drift in the heckscherville Valley were both opened in 1830. The Oak Hill Mines at Mt. Laffee were opened by Daddow and Brown in 1830.

The collieries prior to 1830 were all in a flourishing condition and were operated in such an economical manner that revenues were derived from the investments. But rumors of fortunes being made in the coal region attracted speculators from the large cities who flooded the region around Pottsville with their speculations in land. These lands were purchased in large tracts by companies formed for the purpose; and these, as well as many tracts held by single individuals, were leased at exorbitant rates to tenants. These joint Stock Companies, or those composed of citizens of other states, obtained charters for mining coal from Legislatures of their respective states. Others became interested in mining operations and the market was over-supplied with coal. The day of speculation came to an end about 1331, after destroying the market that had been so laboriously built up, and every operator of a mine had become bankrupt. The coal trade had only partially recovered in 1833



from the speculations of the revious years, but notwithstanding, the depression due to speculation and overproduction, new mines were opened on a firmer basis, as the increased demand for coal continued.

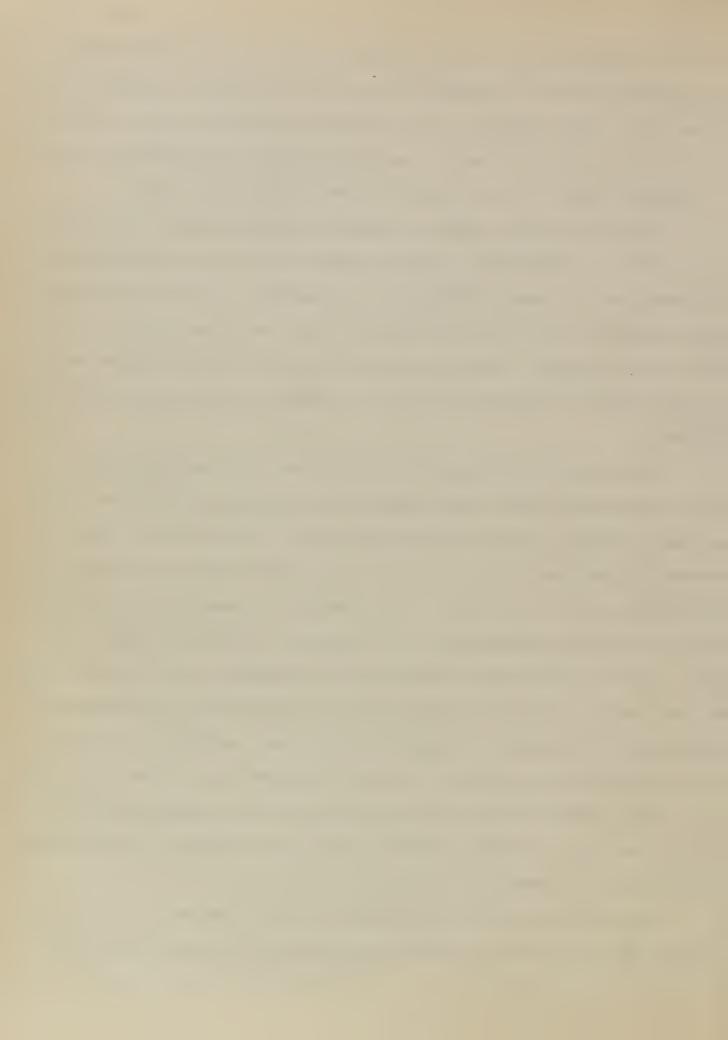
A synopsis of the wild speculation during the prosperous times of 1829 and 1830 is taken from bli Bowen's History of 1848:

"In the year 1829 rumors of fortunes made overnight came whispering down the Schuylkill and penetrated the City of Philadelphia. The young and old were smitten with the desire to suddenly get rich. They thought they had merely to go and play the game boldly to secure their utmost desire. Mumors declared that men worth millions made in a few months, although they had no money to begin with, were quite numerous.

The road up the Schuylkill Valley was well troveled with these adventurers, the stage coaches were filled, men on horseback and men traveling on foot, all on their way to Pottsville. One branch of these adventurers took up land speculations and another the slower process of mining. With the first, mountains, rocks and valleys changed hands rapidly. The frenzy of speculation was rampant, land that was worth hundreds in the forning, sold for thousands in the evening - in paper money of that description known among the facetious as slow notes. Days and nights were consumed in surveys and chaffering, there was not a man who did not speak like a Croesus.

"The tracts of land passing through so many hands become subdivided and that brought on another act in the drama of speculation; the building of towns and selling of town lote.

"Every speculator had his town laid out, they were to be sure, located in the pathless forests; but the future Broadway and rall



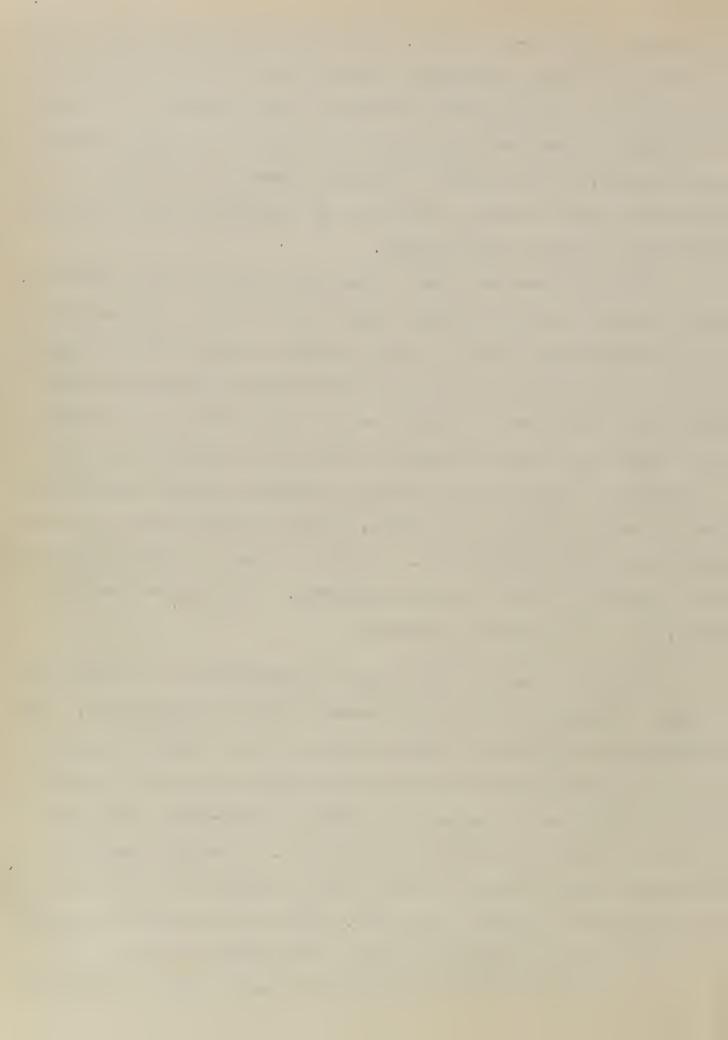
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when ber rooms were hunc around of the these brilliant shetches, ever, men had a roll of inchest towns in his ocket. The most of release to use country in the world is not so thickly studged with settlements as he coal region was to be. The other branch of our adventurers bent their attention to mining; and they would show you at the rid of a bencil and piece of maner the menner in which they would make fortune in a given space of time -- chance so much, transfortation so much, will sell for so much, he was a clear trait of ----.

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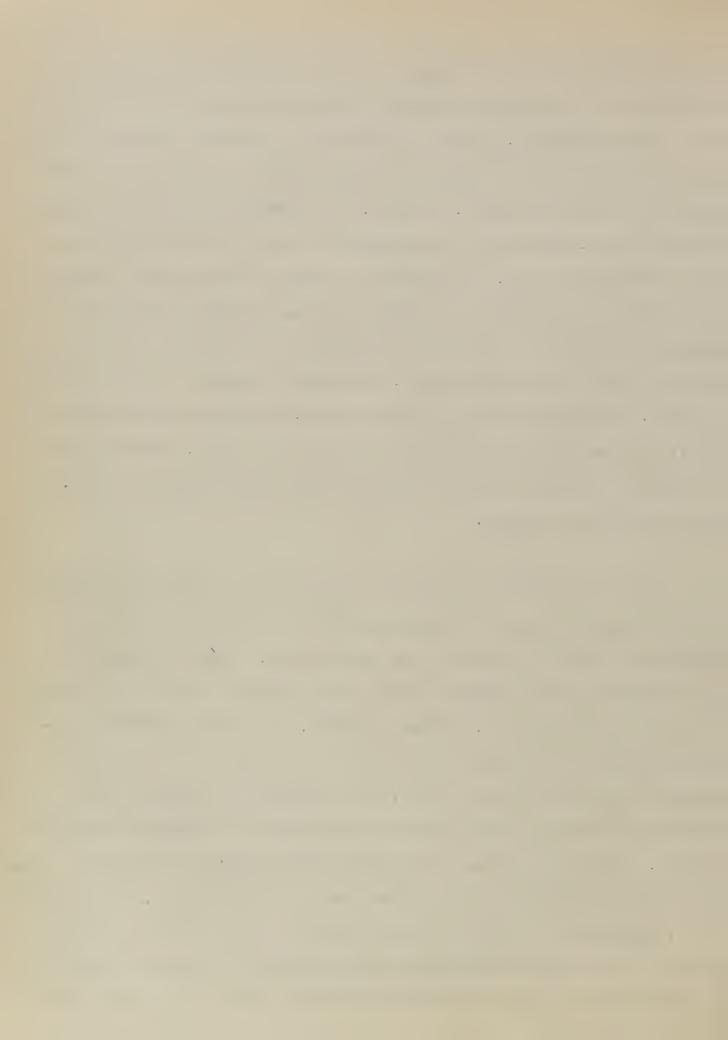
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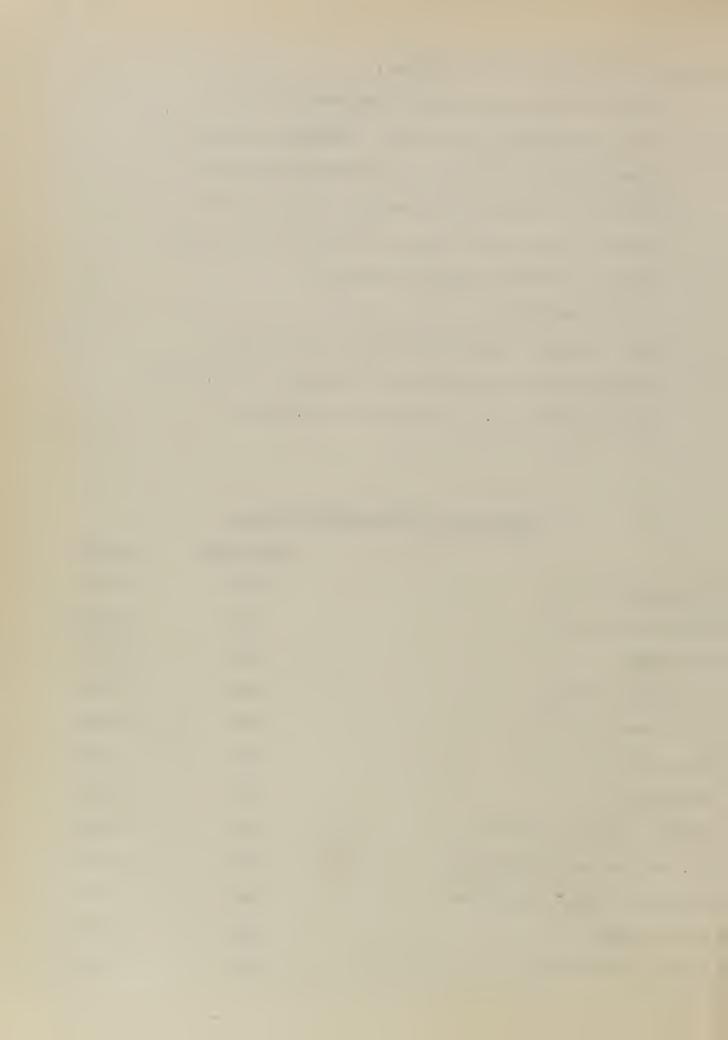
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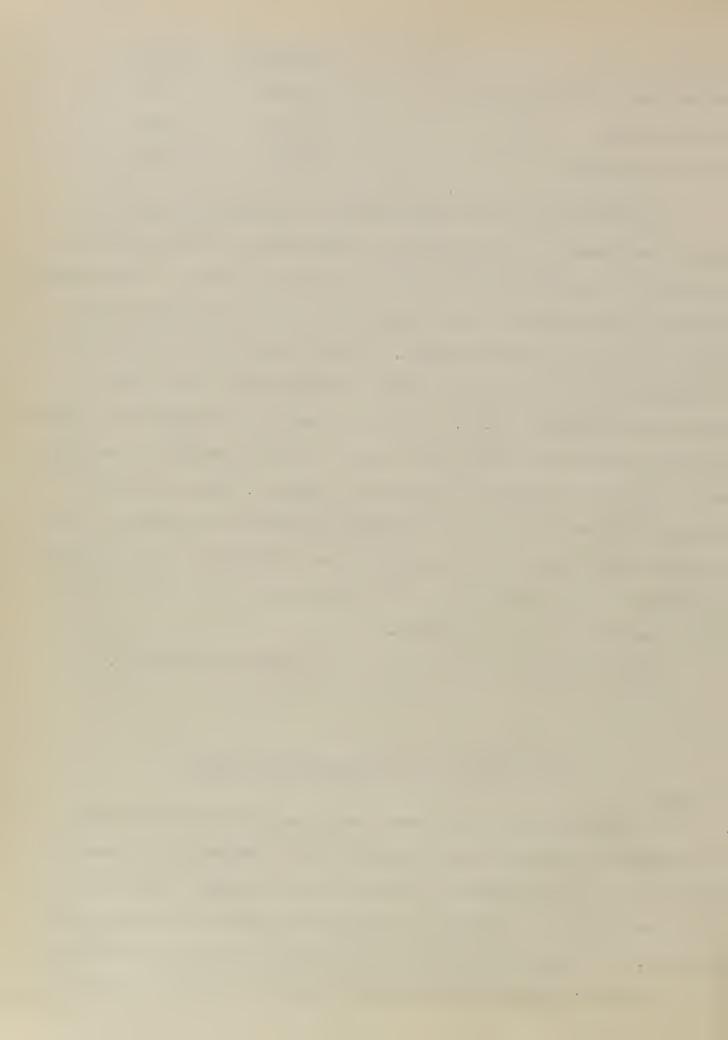
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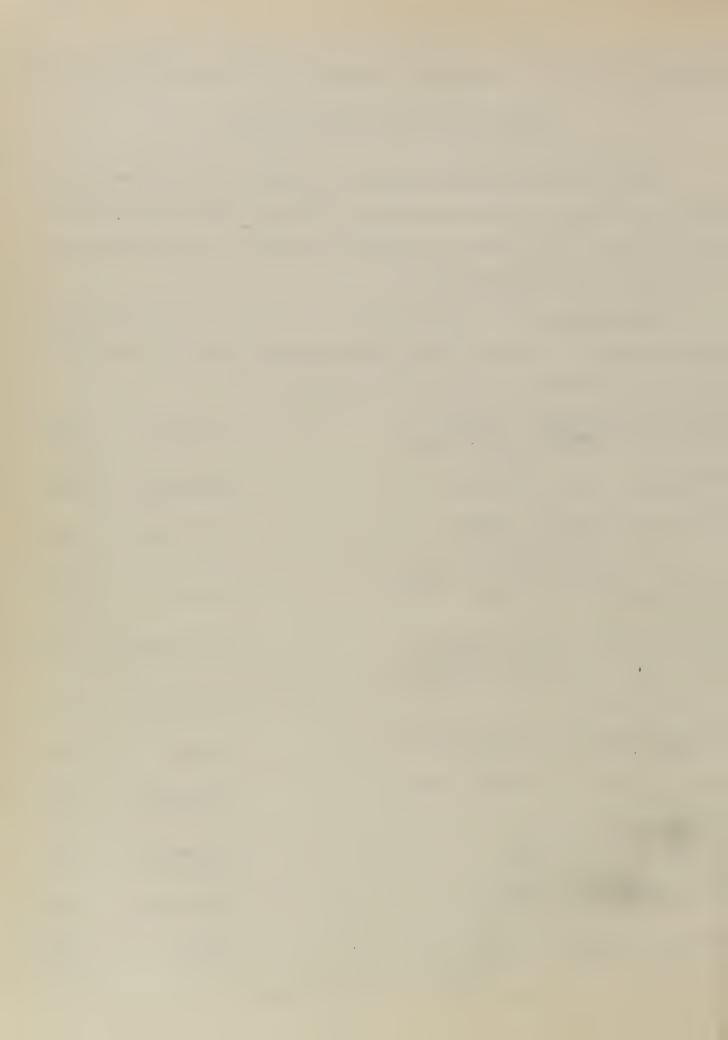
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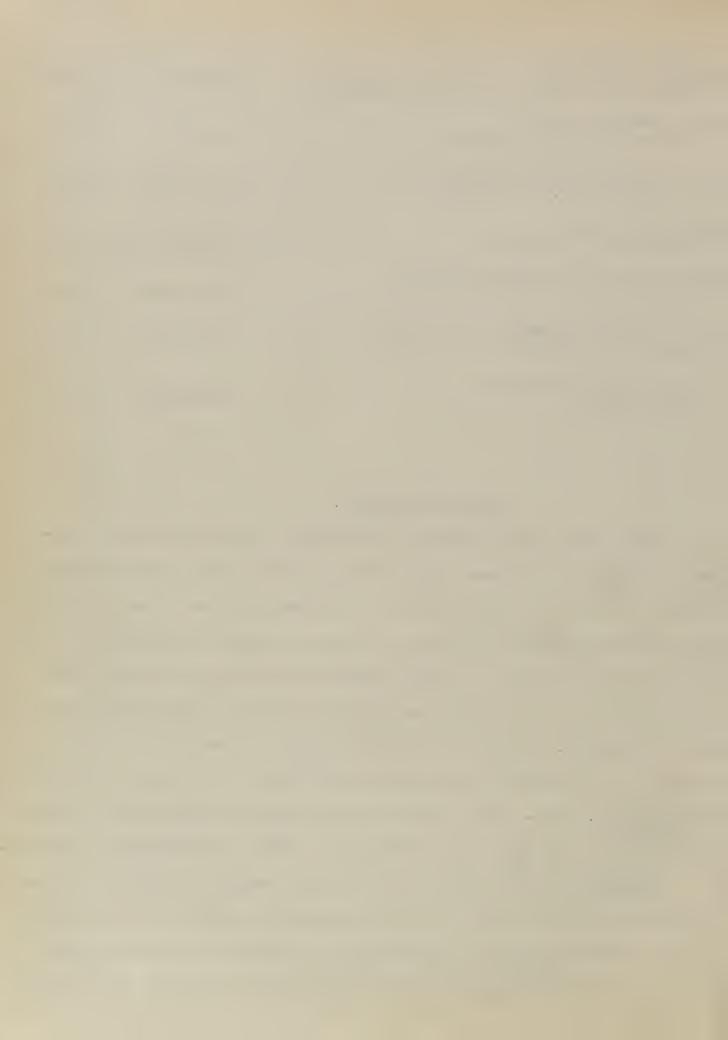


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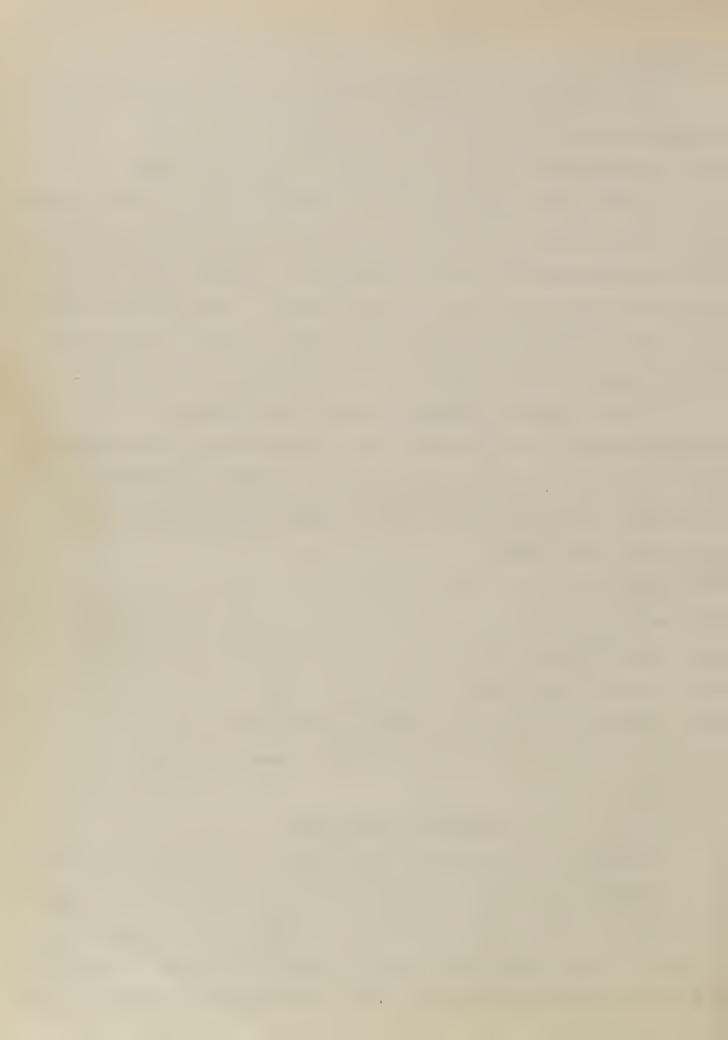
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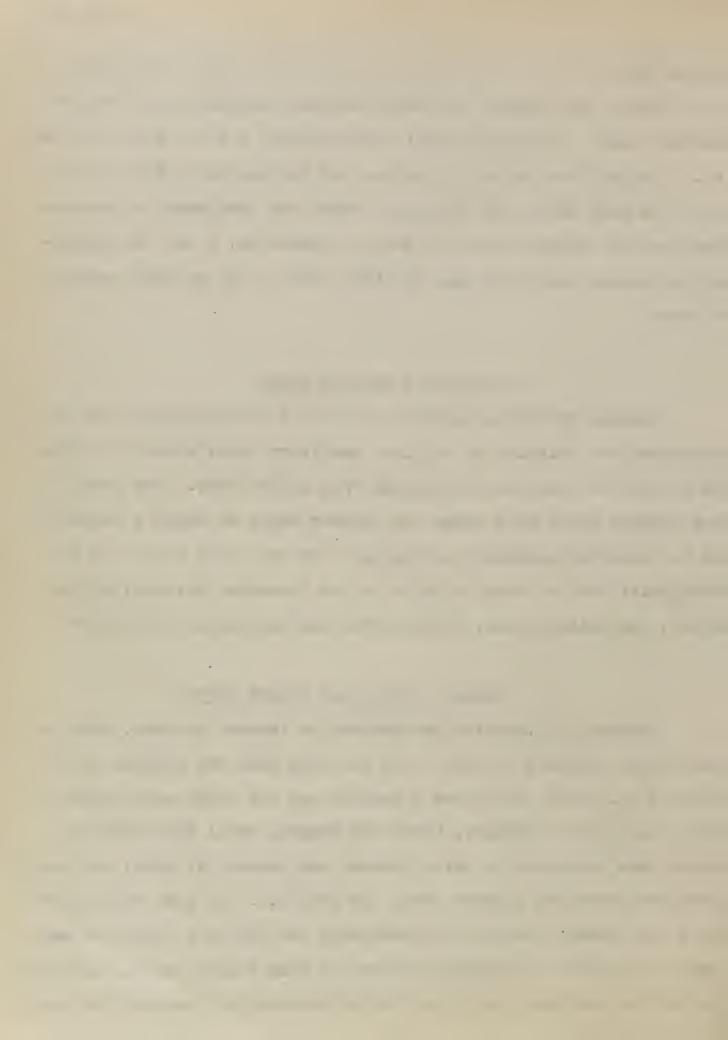
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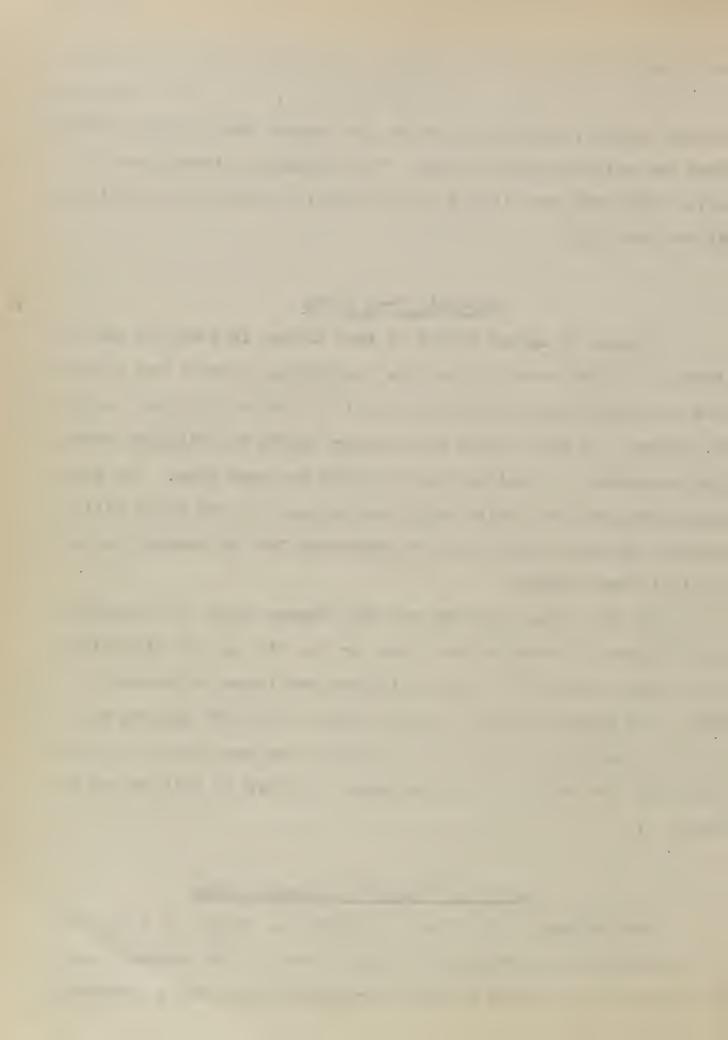
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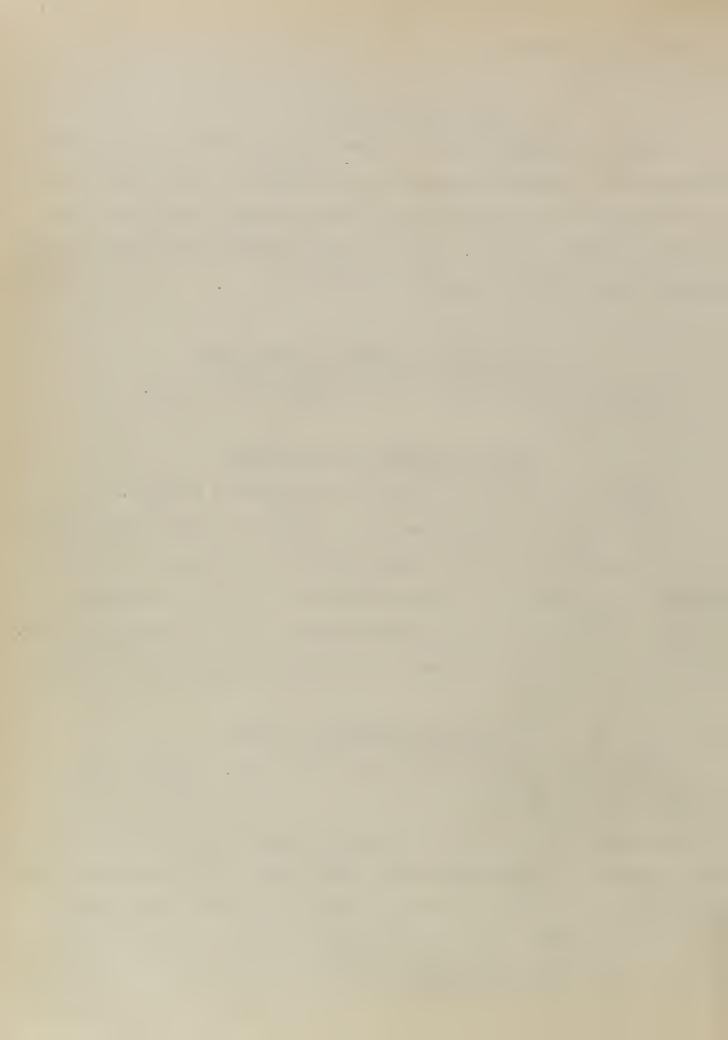
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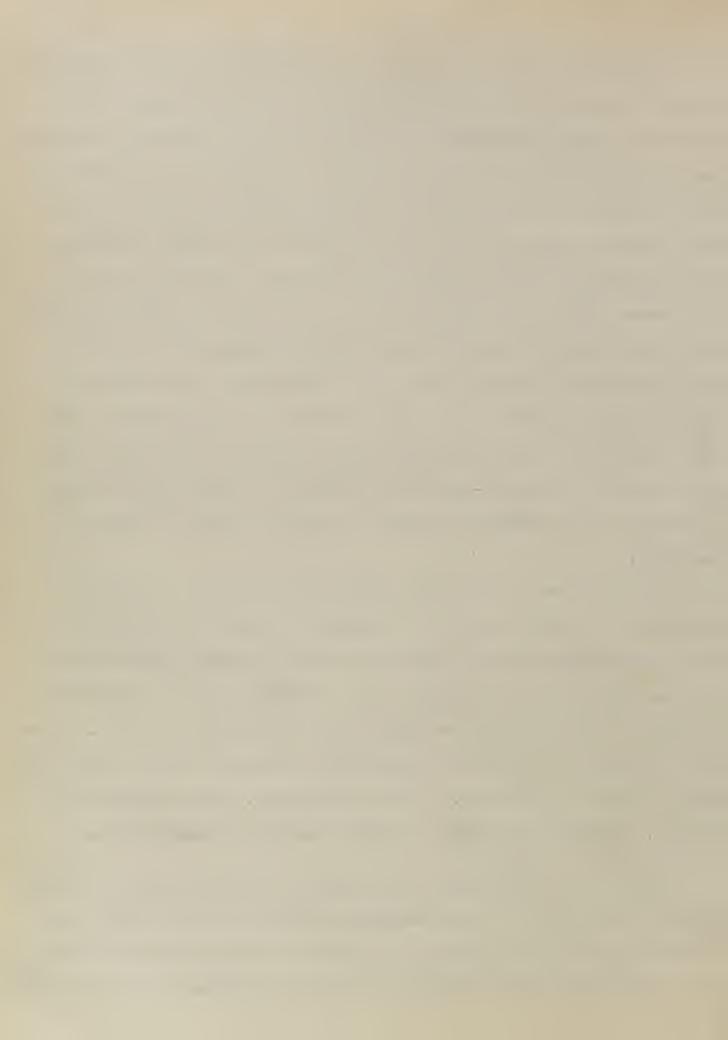
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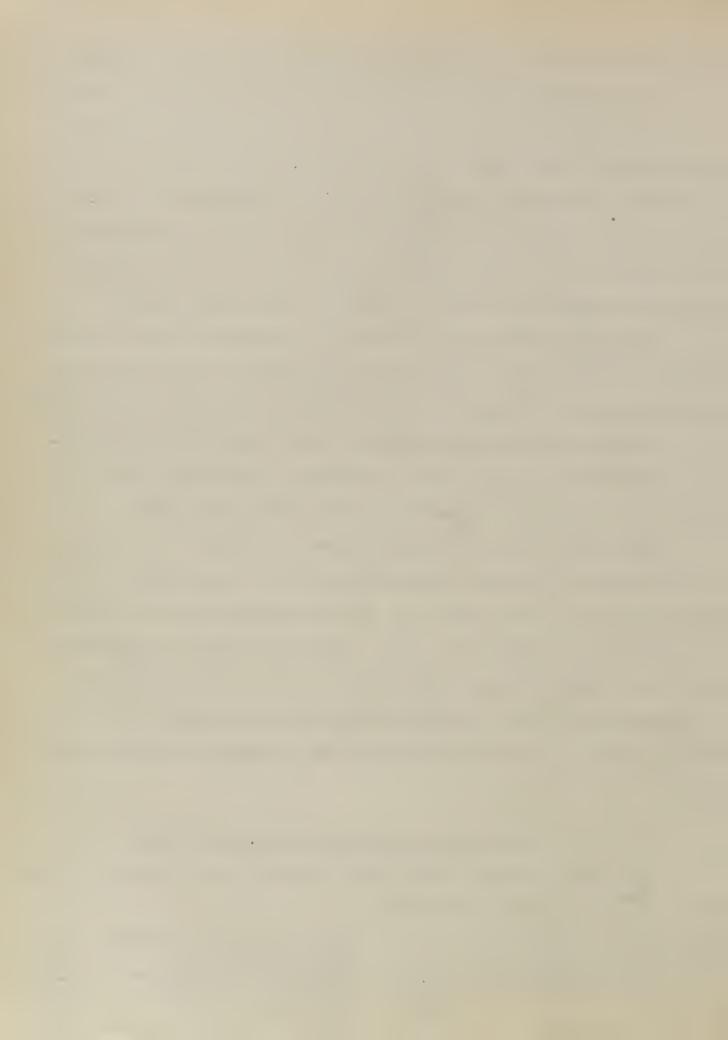
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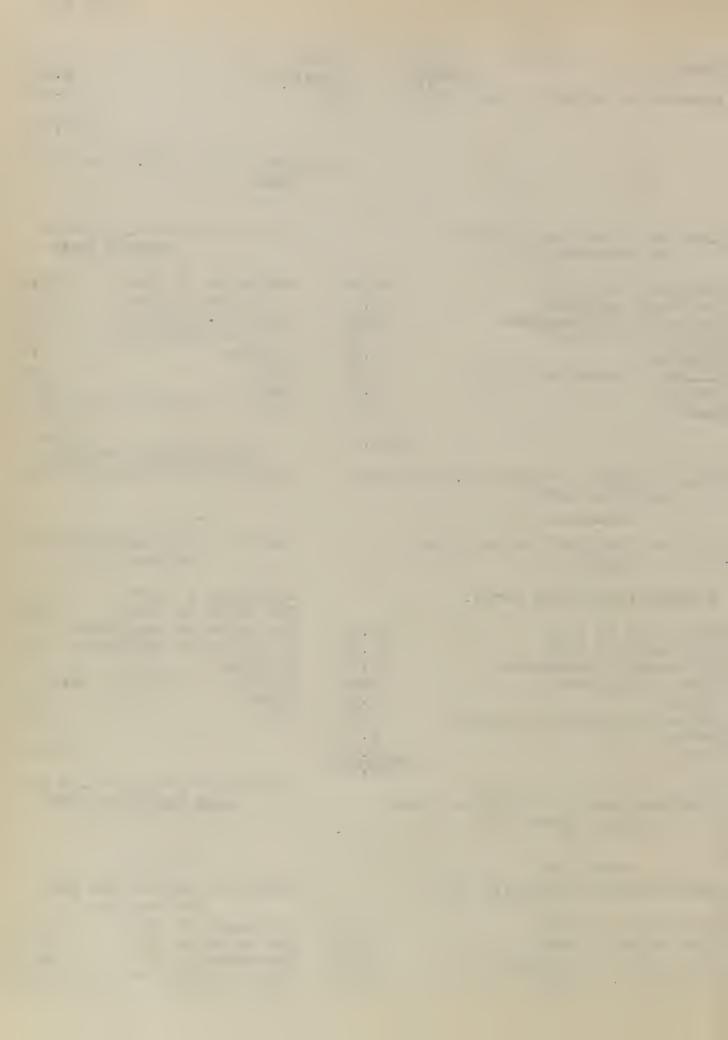
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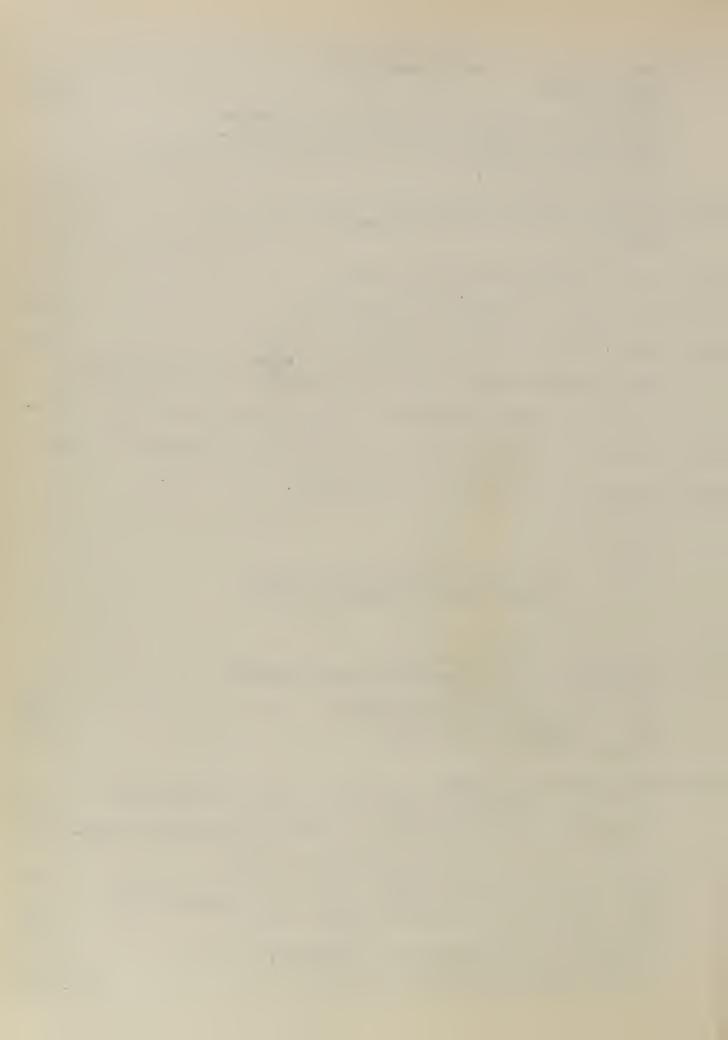
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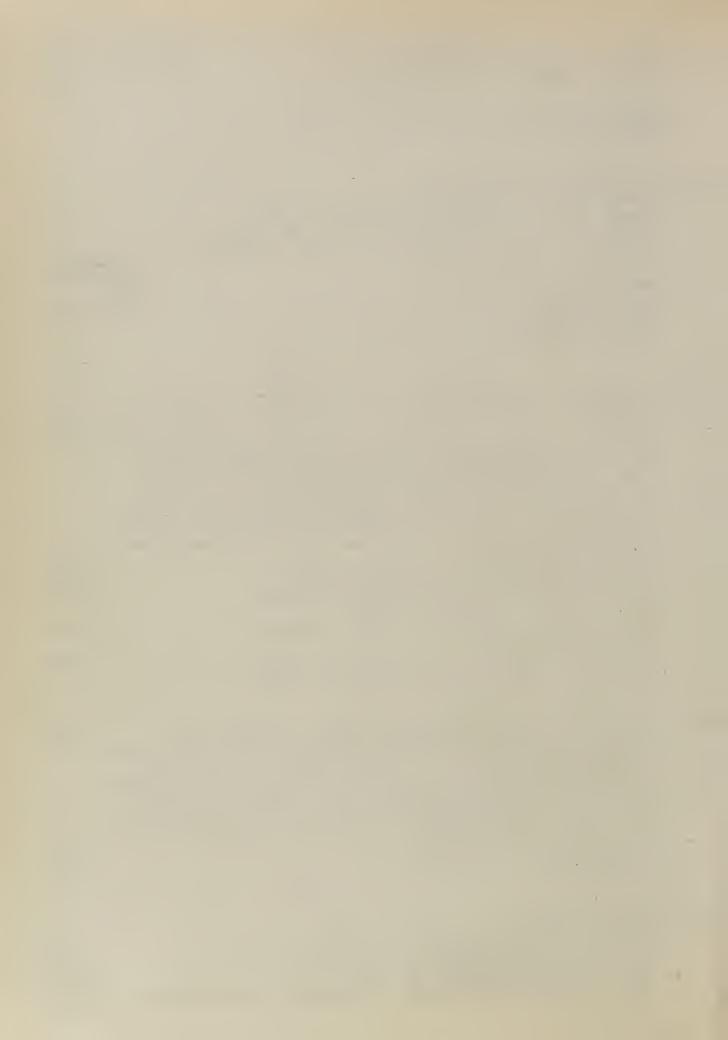
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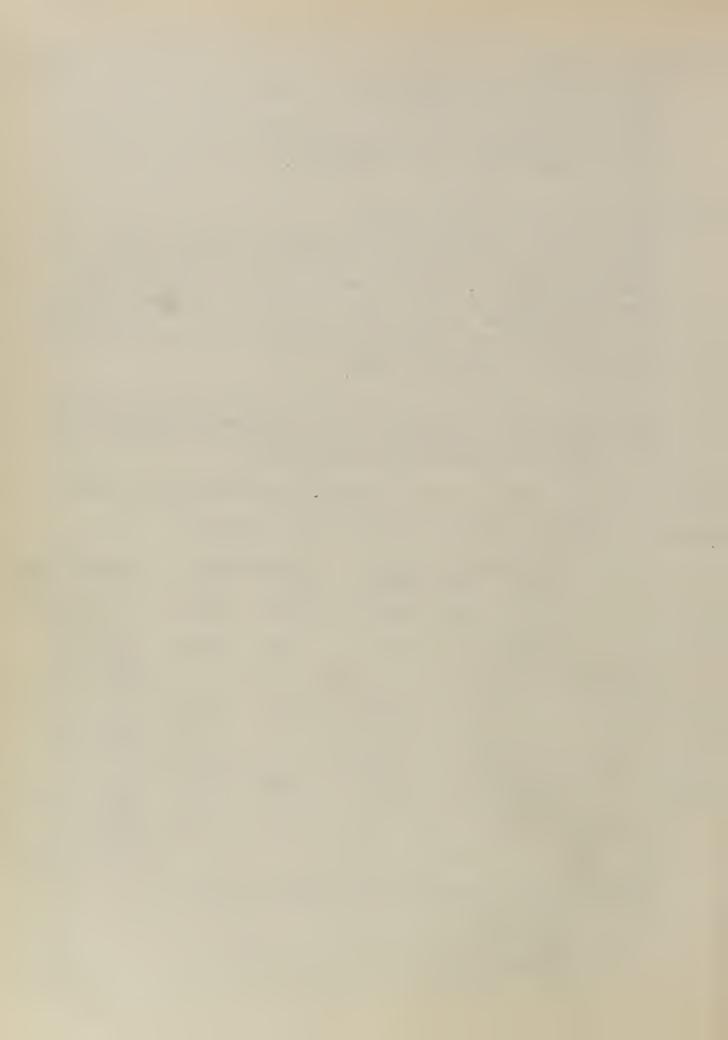
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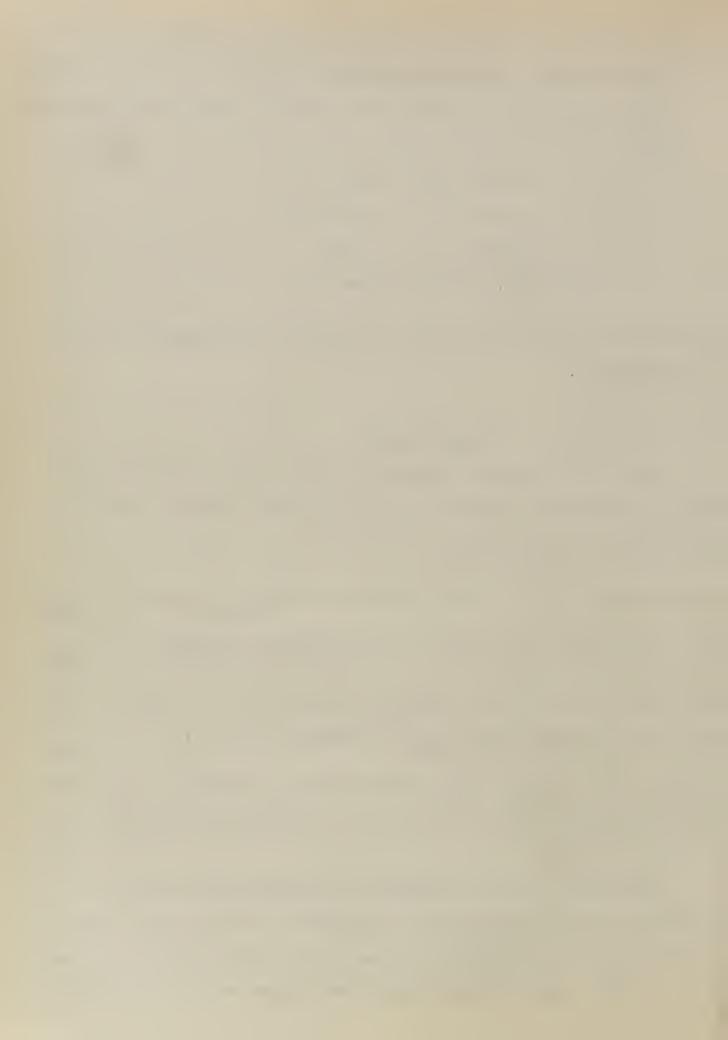
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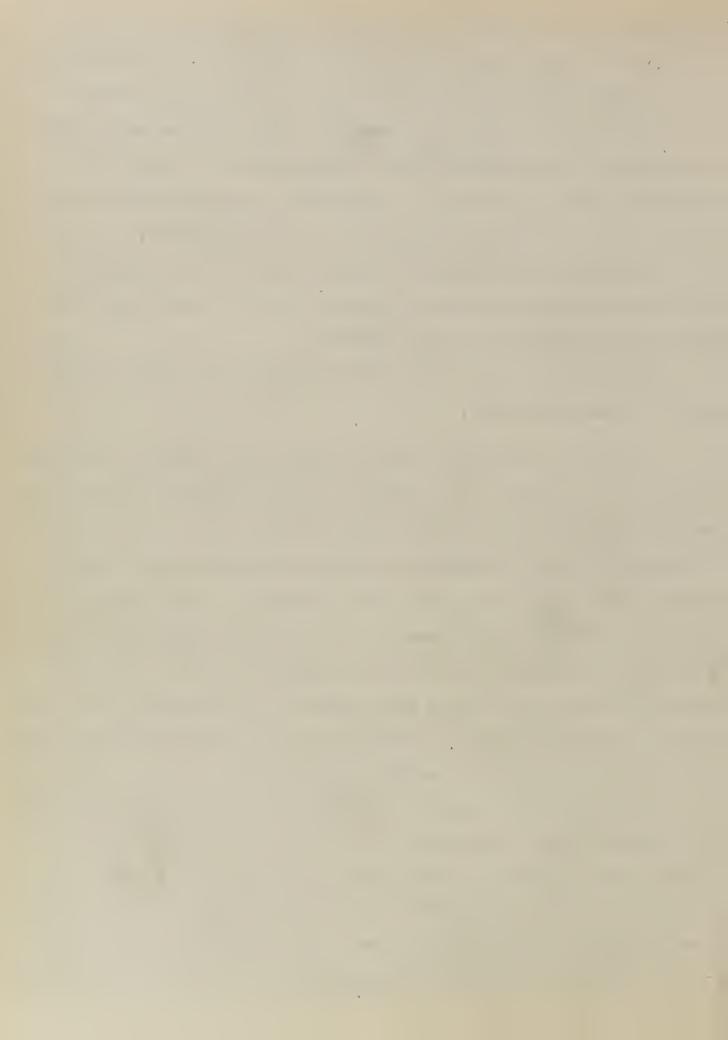


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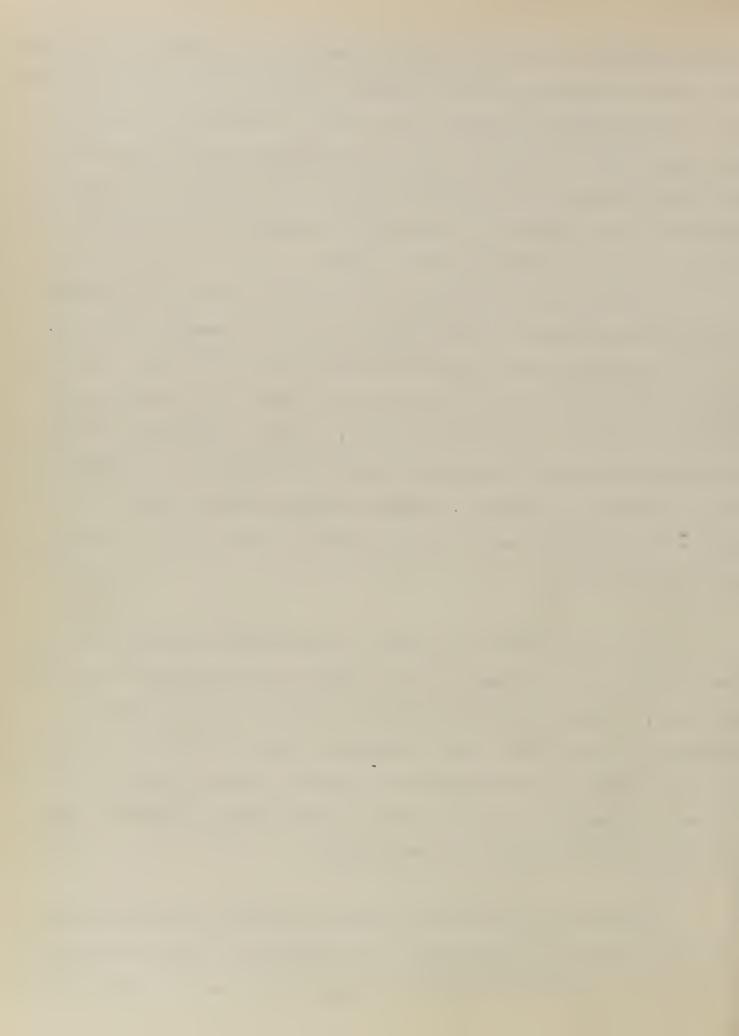
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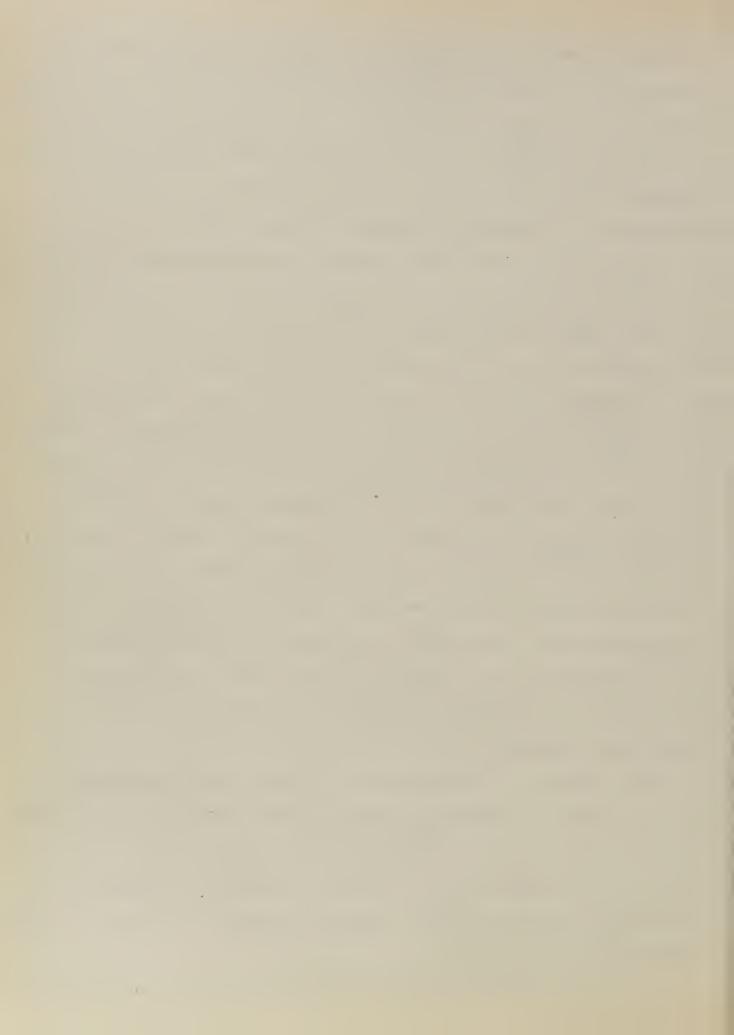
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can scarcely work 200 days. The consequence is that miners and laborers of the region require higher wages—the same as brickleyers, etc. who only work a portion of the year, to make up for inte time. The operators have to pump water all the time, and keep up their establishments at great expense during this little time; and while they ought, in consequence of these disadvantages, receive better prices, they are compelled to sell at lower rates. When occasionally there is a demand for coal, and they can obtain good prices there is a scarcity of vessels at Fort Richmond. The trade is checked from this cause also, a direct outlet to the bay of New York which would give at least 250 working days in the year for our collicries, would check two—thirds of the turnouts and other difficulties that are constantly occurring in Schuylkill County.

THE ORIGIN OF MINE INSPECTION BY THE STATE

The large number of serious accidents in the mining industry, following each other in rapid succession, drew the attention of the public to the casualties in the mining of coal and means should be employed to prevent the great loss of life.

"In 1858 mining laws were discussed by the people of Schuyl-kill County, and a draft was prepared for presentation to the Fennsylvania Legislature in which was empodied an inspection of the anthracite mines by a qualified person under a state law, but was never acted upon. In 1860 a mining law was passed by one branch of the Legislature, and in 1869 a bill was passed for Schuyllill County, and John Eltringham was appointed Mine Inspector who entered upon his duties, and made his first report to the Governor which the Legislature ordered published. An effort was made to extend it to



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pose of ventilation, by a wooden partition into two parts. The latter cought fire from a furnace used to produce the current of fire in the mine, and the flames were communicated to the breaker, a large building also of wood placed directly over the mouth of the shart, when the partition was destroyed, the air could no longer enter the mine, and the men to the number of 108 died by suffocation."

- Extract from pager read at the American Social Science Association in Philadelphia by Lokly L. Coxe.

A new law was passed by the Legislature April 5, 1870 under an act for the safety of the lives of the miners; and the countres of Schuylkill, Northumberland, Columbia and Dauchin were divided into three districts. The first district embraced all collieries south of broad Mountain and extended east to the Carbon County line, and went to the west branch of the Schuylkill River, and Frank Emeltzer was appointed Mine Inspector for the district. The second district embraces all the collieries north of Froed Mountain, New Boston Basin and those of Columbia County, and John Litringham was appointed and make Mine Inspector for the district. The third district embraced all the collicries in Schuylkill County west of the branch of the Schulkill River and Northumberland and Dauphin Counties, and David Edmunds was appointed Line Inspector of the district.

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VINTILMITON

In the earliest mining of coal in this Jountry no attention was paid to ventilation, as the openings in the veins had not as yet penetrated far enough to be a flected, but as mining advanced further into the vein, it became necessary to provide sufficient



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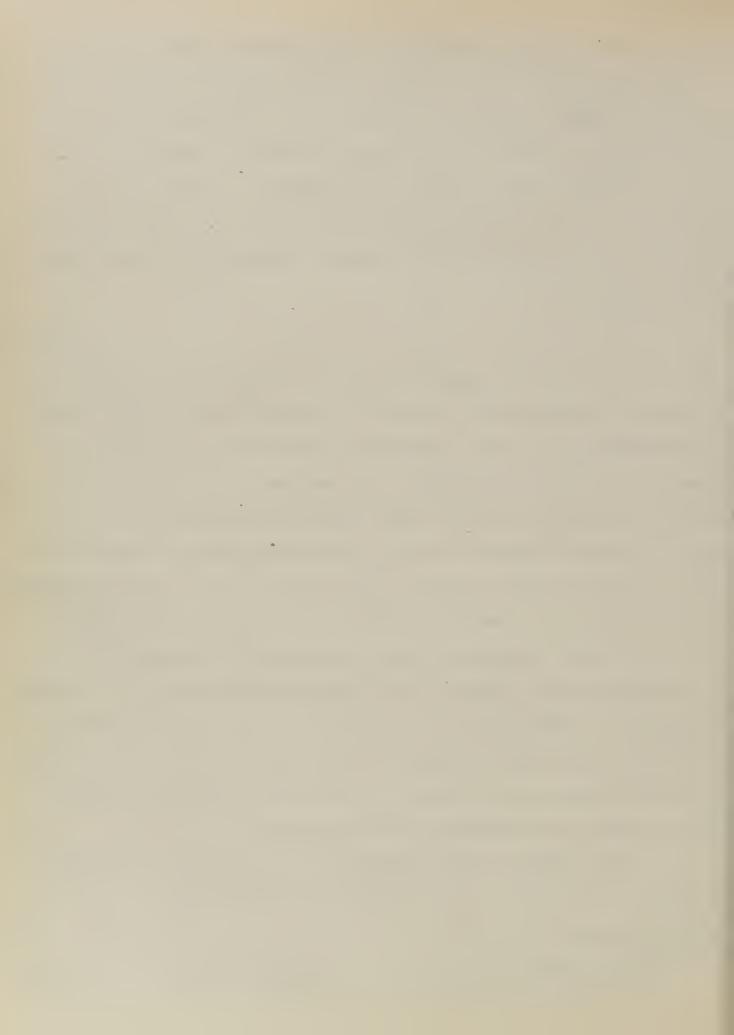




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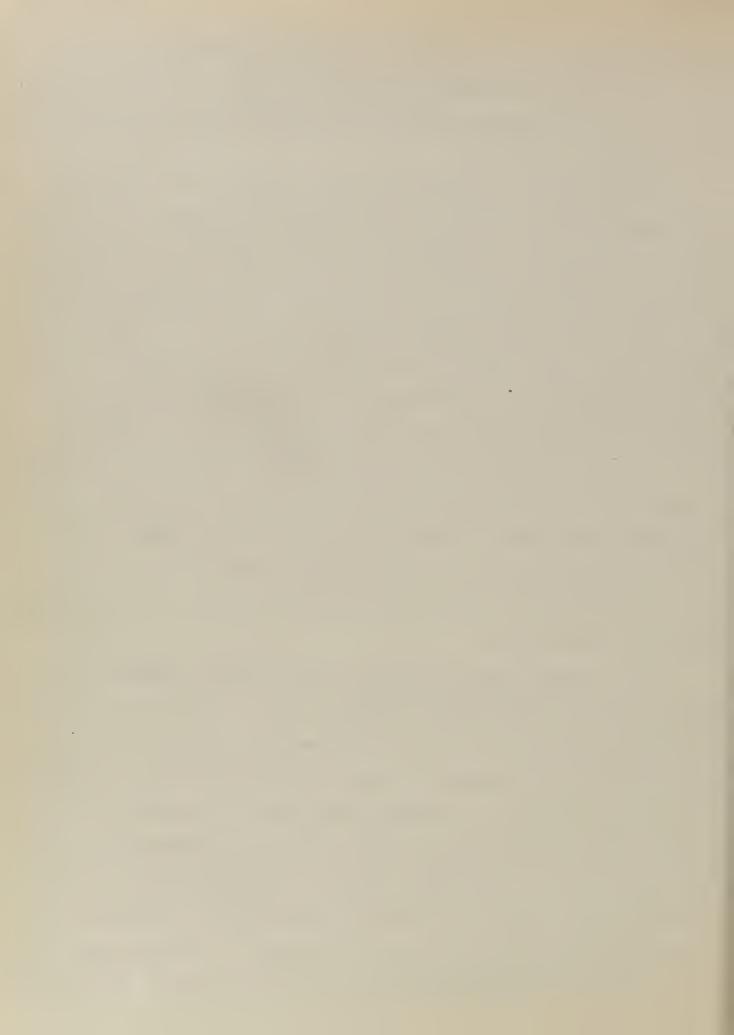
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of coal at Port Caroon above the 12.75 per ton; the basis price of contract work to be 8 1/4 percent, below the basis of 1869.

mesolved, that if this offer is not agreeable to the operators, we are willing to submit the question of wages, including all propositions thus far made by either side, to arbitration; to appoint committees of four on each side to sup ort, by argument, their several offers. A committee was appointed to wait on Mr. Mendrick, President of the Anthracite Board of Trade to give him the result of the meeting.

John Siney, President.

"George Corbett, Secretary, Pottsville, April 27, 1871

The following reply was returned in answer to the above:

Mr. John Siney, President--Sir: I am in receipt of resolutions passed by the Executive Committee of the W. B. A., April 27, 1871.

In reply would say, that I have submitted it to the operators and they adhere to the proposition as made to the men on Saturday,

April 22, 1971.

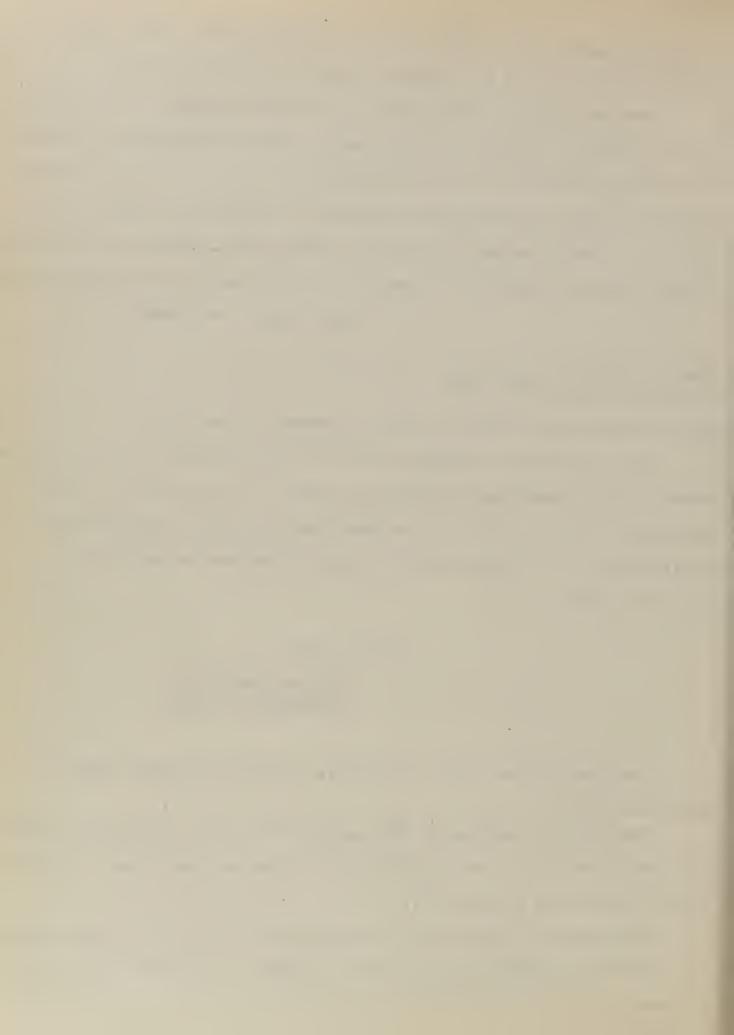
Yours truly,

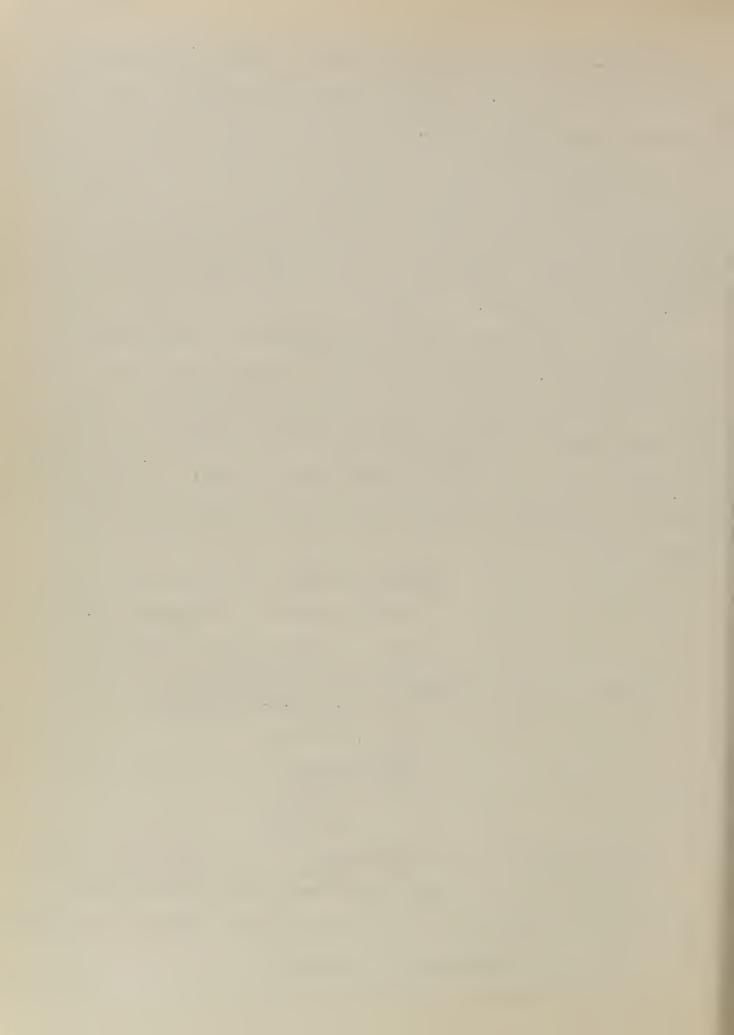
William Mendrick, President, A.B.T.

Arbitration was then decided on, and the following $agrecame{e}$ meet was adopted:

"Articles of agreement made and entered into between the Anthracite Board of Trade, and the Miners and Laborers benevolent Association this eleventh day of May 1971.

"We agree to submit for the decision of the umpire, Judge Elwell, the question of wages for Schuylkill County, for the year 1871, as follows:





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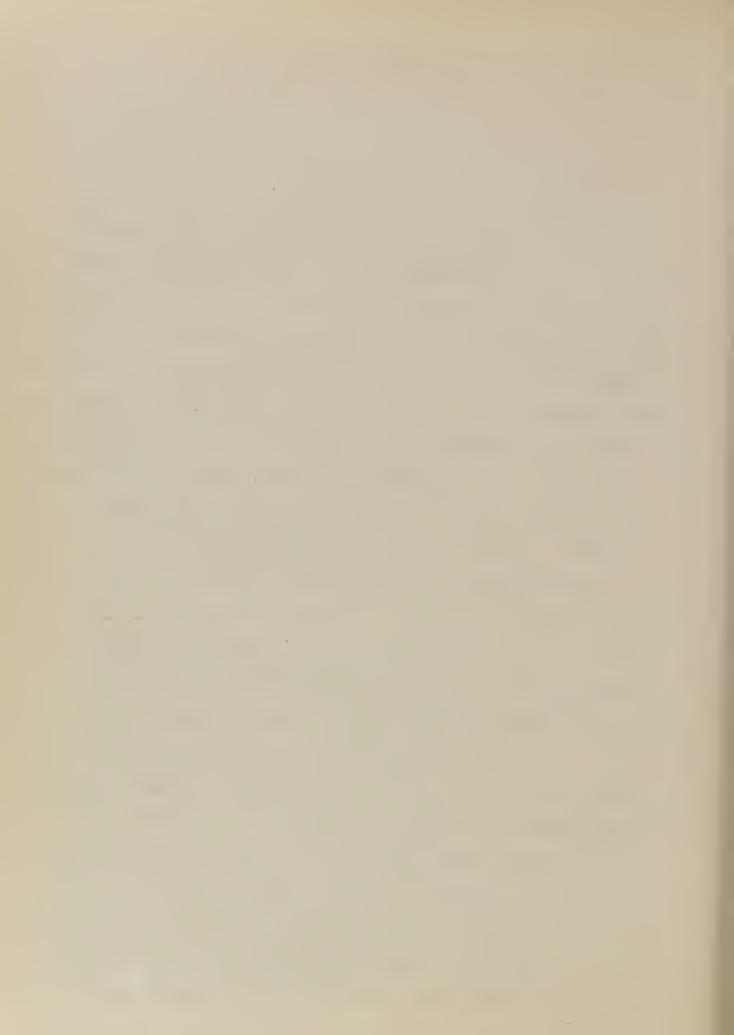


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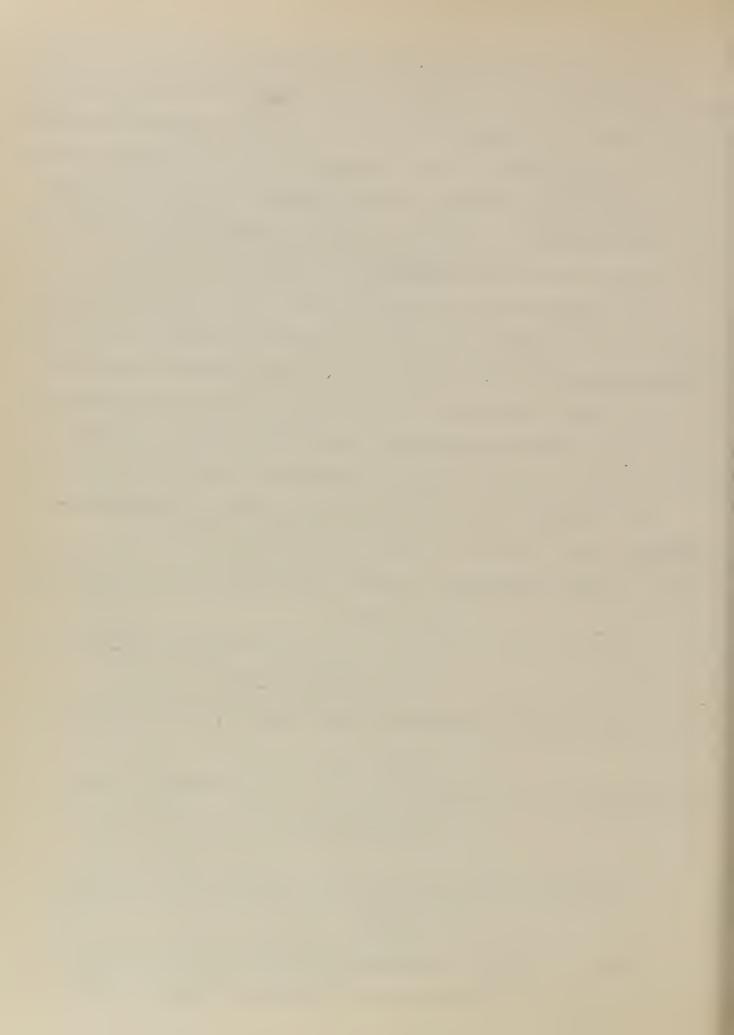
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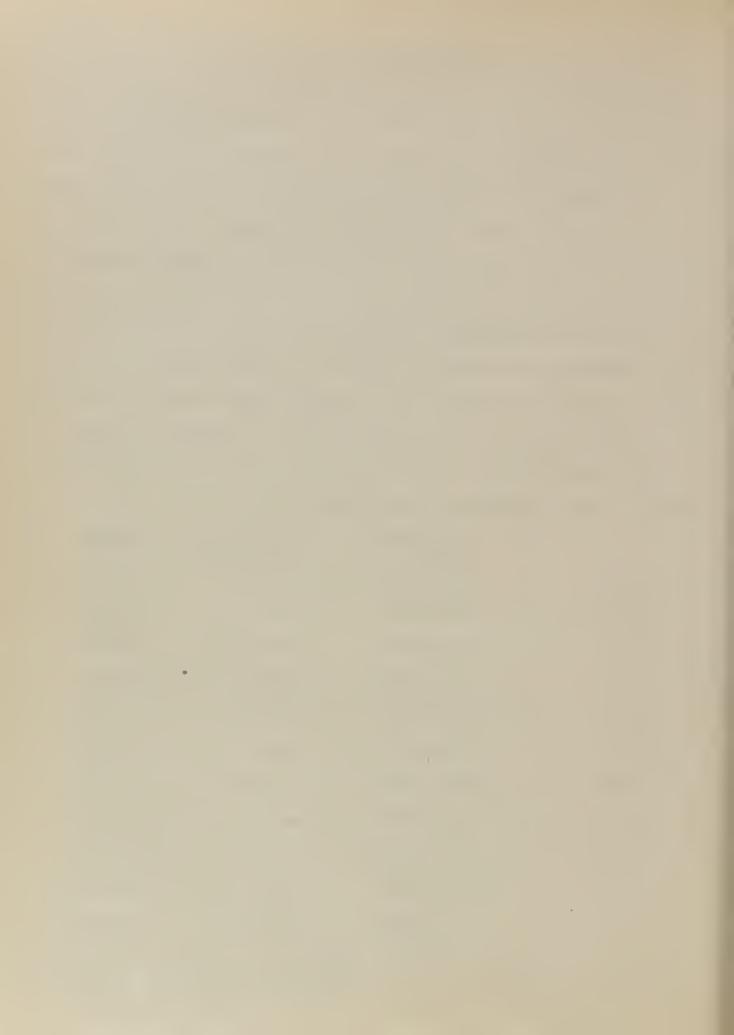
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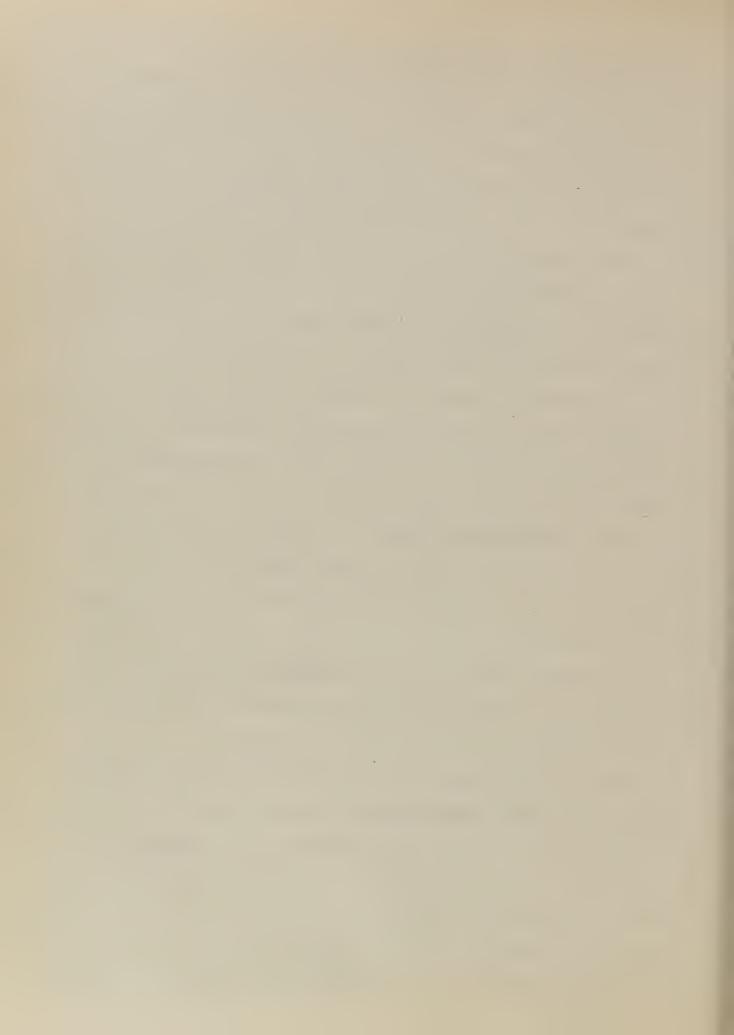
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1864	3.39
1365	7.46
1366	5.80
1867	4.37
1368	3.36
1869	5.31
1370	4.39
1371	4.46
1372	3.74
1873	4.27

About April 1871, attention was attracted to the coal land purchases of the Philadelphia and Reading Coal and Iron Company, the stock of which is all owned and controlled by the Philadelphia and Reading Mailroad Company. The Reading Company was authorized to issue bonds to the amount of \$25,000,000 to invest in lands, and within a year this company had purchased 70,000 acres of land in what was termed the Schuylkill and Shamokin Regions, the tonnage of which is almost entirely controlled by the Philadelphia and Reading Railroad Company. They own lands in Schuylkill County on which there are already 75 workable collieries and in the adjoining counties of Columbia and Northumberland, the additional number they own will swell the number to about 100, over which they own and have controlling influence.

The Lehigh Valley Railroad Company have purchased the Delano lands in Schuylkill County, and they hold controlling interest in the Locust Mountain Coal and Iron Company lands in Columbia and Northumberland Counties, and also in the New York and Middle Coal Field Company's lands and own one half interest in the Trevorton



company's lands. In the Shamokin Region, the Mineral Railroad and Mining Company have also commenced purchasing lands. The Philadelphia and Reading Coal and Iron Company, Lehigh Valley Kailroad Company, and the Mineral Kailroad and Mining Company connected with the Northern Central Railroad Company control and outlets to market.

1873

President Gowan of the Philadelphia and Reading Railroad inaugurated a policy of encouraging the trade of the line in every possible manner, by offering to loan the bonds of the Company for one-half the cost of the erection of iron works on the line and the erection of other large manufacturing establishments. Then met with the difficulty of procuring a sufficient quantity of iron ore for the use of the furnaces that may be erected, he immediately commenced the development of extension bodies of ore lands near the line of the road, in Cumberland County; in Virginia, and also at points where they can obtain return cargoes of coal to and near these points. For the last two years, under this policy, the consumption for coal on the line of the road and its branches has been increased 564,165 tons.

The incorporation of the Philadelphia and Reading Coal and Iron Company was developed by the conditions pertaining to the Anthracite coal trade. Prior to 1872 nearly all the operators became bankrupt with few exceptions. Some of whom were saved from failure by the purchase of their collieries by the Philadelphia and Reading Coal and Iron Company. President Gowan of the Phila-



delphia and Reading Railroad Company seeing the conditions and knowing that the tonnage from the coal regions was vital to his railroad, and with the knowledge that other railroads were encroaching more each year in the territory covered by his road, developed a plan to protect his company's interest in gaining control by purchase of coal lands and collieries in Schuylkill, Columbia and Northumberland counties, thereby insuring the Reading Railroad tonnage from collieries located upon these lands.

Following President Gowan's plan to establish a company to insure tonnage in the coal trade from the southern coal field, the board of directors authorized an expenditure of \$\pi^25,000,000\$ to be invested in coal lands. The Laurel Run Improvement Company was chartered by act of assembly may 18, 1831, and the new company formed under the name of the Philadelphia and Reading Coal and Iron Company as a holding company, took over the Laurel Run Improvement Company by decree of court order December 12, 1871.

The segregation of the Railroad and Coal Company was made in final decree of the United States District Court on June 28, 1923 "That the joint liability of the Company and Reading Company shall be severed". The total acreage purchased by the Philadelphia and Reading Coal and Iron Company as of 1872 was

73,301 acres in Schuylkill and Columbia Counties.

22,373 acres in Northumberland County 95,674 total acres.

These lands embraced sixty-six (66) collieries in Schuylkill County, three (3) in Columbia and twenty-seven (27) in Northumber-land County or a total of 96 collieries.

The Lehigh Valley keilroad Company in 1872 owned lands in



schuylkill County on which there were located ten (10) collieries. At the same date the Lehigh and Susquehanna Reilroad Company and the Lehigh and Navigation owned lands in Schuylkill County on which four (4) collieries were working. The Mineral Railroad and Mining Company combined with the Shamokin Branch of the Northern Central Railroad owned four (4) collieries in the district, leaving but four (4) collieries not owned by the different carrying companies then opened in 1872. There were only thirteen (13) small collieries working (1872) in the southern field on lands not owned by the P. & R. C. & I. Company and the Lehigh and Susquehanna Railroad Companies. In the Mahanoy Region there were twenty-one (21) collieries worked on other lands than those owned or controlled by these companies of which eleven (11) were on the Girard Estate, seven (7) on lands of Gilbert and others, two (2) on the Cuyler lands and one (1) on the New Boston lands. These large holdings of coal land brought the attention of the public and the cry of monopolies was heard both socially and politically that the State Legislature was compelled to institute an investigation as to its legality and on July 29 & 30, 1875 the committee appointed by the Legislature convened at Atlantic City to hear President Gowan's explanation.

The following extracts are taken from President Gowan's Argument before the joint committee of the Legislature of Pennsylvania at Atlantic City on July 29 and 30, 1375:

"The Schuylkill and Mahanoy coal fields together contain two hundred and thirty seven square miles of coal; the Wyoming coal field contains only one hundred and ninety-eight. The Schuylkill and Mahanoy region, the Schuylkill particularly, was the first one opened (Page 17.) In the year 1840, the Schuylkill region produced 490,596



tons of coal and the Wyoming region produced only 143,470 tons. The product of the Schuylkill region was more than three times as large as that of the Wyoming region. In 1850 the Schuylkill region produced 1,840,620 tons and the Wyoming region 827,823 tons. This was about the period when the large corporations in the Wyoming region were going into business extensively as miners of coal.

"The tonnage of the Schuylkill region had increased in 1860 to 3,749,632 tons or about double; while that of the Wyoming region had increased to 2,941,817 tons or more than trebled. At the end of the next ten years, while the Schuylkill had only increased in 1870 to 4,851,855 tons or twenty-nine percent, in ten years, the Wyoming region increased from 2,941,817 tons to 7,825,128 tons or one hundred and sixty-six (166) percent within the same period. Here was an increase of one hundred and sixty-six per cent against twenty nine, due to the fact that the Wyoming region was controlled by large corporations which could expend money in developing the lands, and who were not liable to be prostrated by monetary panic.----

"The Reading Railroad Company had no right under its charter to own mines, or to own lands, or to engage in the business of mining coal to supply its line with tonnage, but every other Pennsylvania coal-carrying corporation whose outlet was the City of New York had such right. The Delaware and Hudson Canal Company was chartered by the Legislature of Pennsylvania and had the right to mine coal, to own coal lands and to transport coal. The Delaware, Lackawanna and western Railway Company chartered by the State of Pennsylvania had the same right. The Pennsylvania Coal Company chartered by the State of Pennsylvania possessed exactly the same right. The Lehigh Coal and Navigation Company chartered by the State of Pennsylvania



possessed the same right. The Dehigh Valley hailroad Company was the only company which originally was in the same position as the Reading hailroad Company; but, by its merger with the Beaver Meadow Railway, it acquired the right to be an owner of coal lands as well as a transporter of coal. --- Each one of the avenues of transportation controlled by these five companies led directly to the City of New York. The business of each of them was to build up the City of New York with the produce of Pennsylvania in antagonism to the Reading Railroad whose only outlet was the City of Philadelphia --- (Page 0)

"In 1870 and prior to that time, the Lehigh Valley Nailroad Company had extended a line of railway through the heart of the Mahanoy coal field side by side with our own. It had purchased large bodies of lands, and was engaged in diverting a traffic which originally had gone by the Reading Rallroad to Philadelphia to the City of New York, by its own line. The Pennsylvania Railroad Company had acquired the control of the Northern Central Railroad, and through it had secured the Lykens Valley Railroad and the Shamokin And Pottsville Railroad. The former was extended into our southern field at its western end. The Shamokin Valley and Pottsville Railroad, which entered the coal field from Sunbury was extended where it had already secured a large body of land. Further than that, a coalition between the Lehigh Valley Railroad Company, the Delaware, Lackawanna and Western Kailroad Company and the New Jersey Central Railroad Company was formed for the purpose of building a railroad along almost the entire lenght of the southern coal field. These three large and wealthy corporations had located a line from near Tamaqua through the centre of the southern coal field, encroaching upon the territory

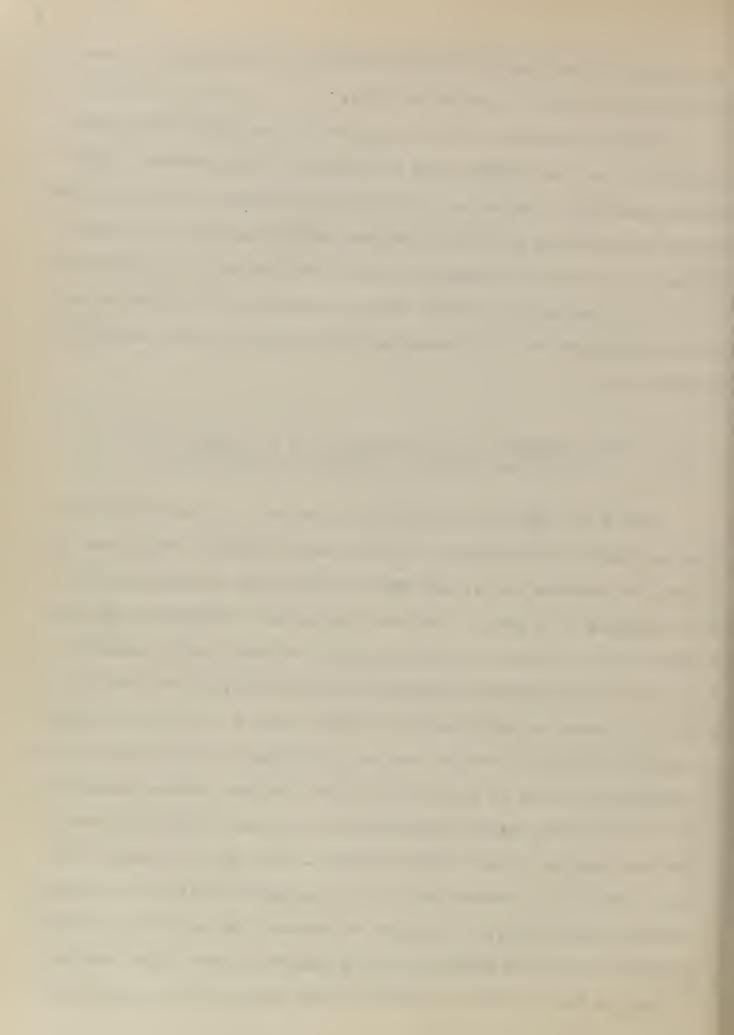


upon which the Reading Kailroad depended for its tonnage. Such was the position of the Kailroads in 1870.

"In the opening of 1871 we had one of the most disastrous strikes in the coal region that we have ever experienced. That strike completely prostrated individual enterprise; threw upon the market large bodies of land which were at the mercy of the rival companies who were attacking us, and we determined to go into the matter as a corporation and to ask the Legislature to pass an act of incorporation for the formation of an Auxiliary Coal and Iron Company.----".

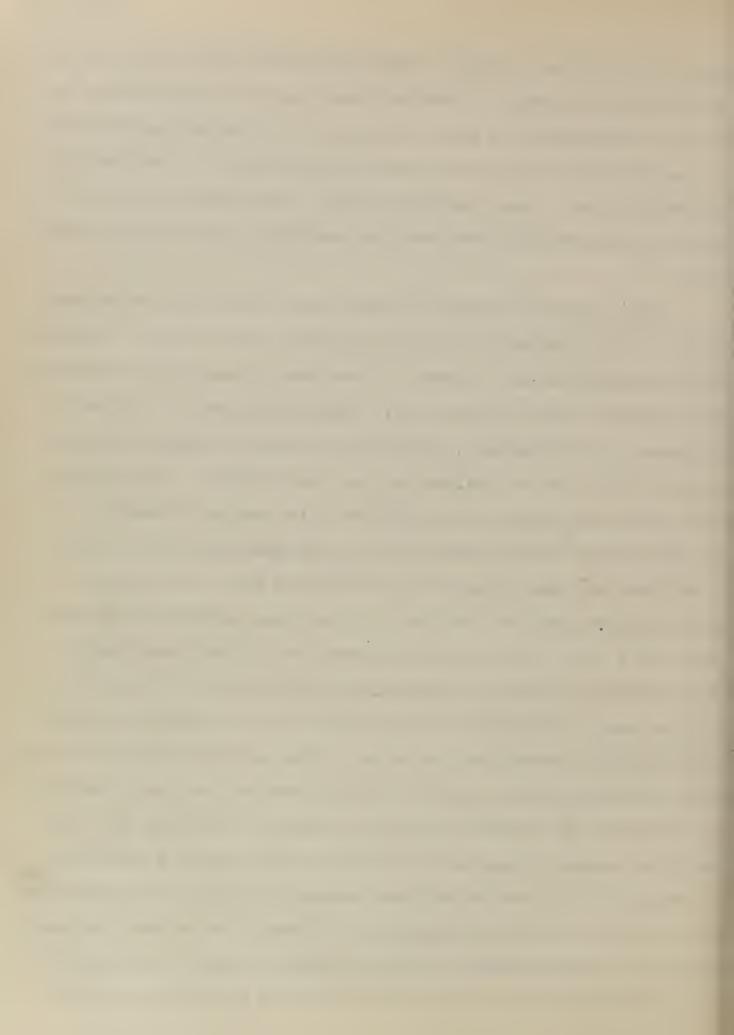
"THE ENTRANCE OF THE PHILADELPHIA & READING COAL & IRON CO. INTO THE BUSINESS OF MINING COAL

"Our first intention was never to mine a ton of coal. The idea was that the ownership of these lands would be sufficient to attach the tonnage to us, and that we could get individuals to mine the coal at a rent. That was the policy inaugurated by the company and to develop it they expended probably eight hundred thousand or nine hundred thousand dollars (\$800,000 or \$900,000) simply in loans to individuals to enable them to get into business. We built collieries, rented them to individuals, and advanced money on mortgage and had it not been for the terrible demoralization of labor in the coal regions resulting in strikes, individuals would have been able to do all that we wanted. But we had, during the time I speak of, a succession of strikes which entirely destroyed individual enterprise. There was no man who had capital to stand up against them; six months out of a year they were idle; and we saw that we had to "take the bull by the horns" and go into the



business of mining ourselves. We tried honestly and sincerely for nearly eighteen months to develop these lands and work them by individual enterprise but were unsuccessful, and we had to take hold of the coal trade as we took hold of the Railroad - establish ourselves in it as a large corporation with fixed rules, and the result has been what you have seen and have been investigating. (Page 22).

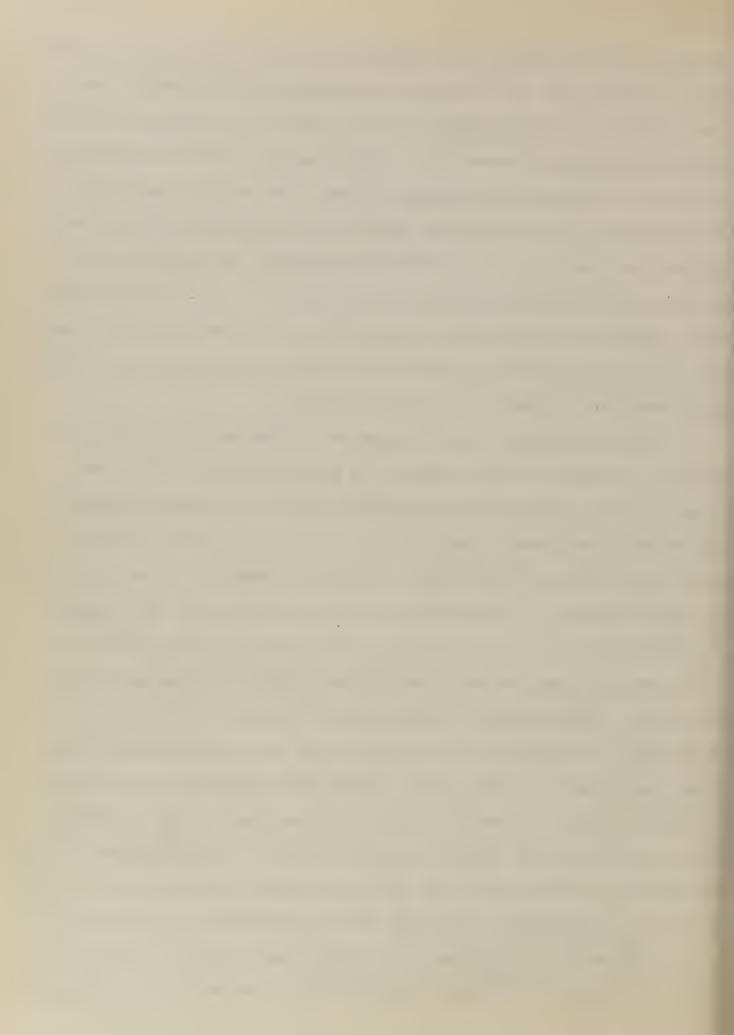
"Look now at the manner in which the business was conducted in those days, and what it became necessary for us to do. You have heard enough from the evidence to know that it was a rare exception that the miner sold his own coal. There had grown up a system of business by which factors, gentlemen of wealth, established themselves in the port of Philadelphia at the terminus of the Reading Road, and took charge of the product as it reached tidewater. I do not wish to reflect unnecessarily upon these gentlemen, nor do I suppose that they deserve to be reflected upon. They had a right to earn money in that way - it had been established by custom; but I say to you that there never grew up and flourished a more iniquitous system in the world, and every man who has been mining coal in Schuylkill county during the last thirty years will testify in my favor upon this point. They levied a charge of twentyfive or thirty cents a ton for the mere sale of the coal, entirely irrespective of the sum of money it brought. The lower the coal sold the better it was for them because they sold on a guarantee commission. The Reading Railroad Company in those days weighed the coal strictly to the very pound, and allowed five percent for waste; and it allowed ten cents a ton as a bonus for every car dumped at Port kichmond before four o'clock of the day it came down. The



practice that had grown up in Philadelphia was, that the five percent for waste and the ten cents for dumping the car were taken by the factor as a consideration for his paying the shipping expenses when the shipping expenses were twenty cents a ton, the aggregate of these two items (the dumpage and the five percent) was about thirty cents, and so there was an additional profit of about ten cents; and I am within bounds when I say that the average profit of doing this business was about forty cents a ton - so that when coal sold for one dollar and seventy-five cents at the mines, nearly twenty-five percent of the value of the product was paid to the middlemen for passing it through his books.

"These gentlemen, the factors sat at the water's edge like leaches, sucking the life blood of a healthy trade; and as one after another dropped off, gorged to repletion, others took his place until the emanciatedbody handed over to us hardly seemed worth the effort of preserving. Everybody knew it, it was the talk of the community. I practiced law for seven years in the County of Schuylkill and in all that time, and up to it, there were but three men who ever retired from the business of mining coal with any money. There was no orphans Court business in that county. I never drew a will in my life but one, and the man for whom I drew that had no money. Every man's estate was settled by the sheriff before he died. I lived through all these times in that county, and I am glad to say that it was the result of that experience which enabled me to make a vow that if it ever came into my power, I would try to do something to make that County prosperous ---- (rage 23).

"Having once concluded to go into the business, we made up our minds that we would sell our own coal. You see, therefore, the



reason for the opposition of these gentlemen. We shipped last year of the business formerly done by factors, one million three hundred thousand tons of coal. At forty cents a ton, here was five hundred and twenty thousand dollars annual profit taken out of the pockets of eight or ten men. No wonder they looked angry, no wonder they declared war. Think gentlemen, of five hundred and twenty thousand dollars a year for doing nothing, taken out of the pockets of eight or ten men. No wonder they think badly of us, because we deprived them of the profits in which they were accustomed to participate.

COAL CONSLIVATION

Mr. Edward W. Parker, Statistician in charge of the Division of Mineral Resources of the U.S. Geological Survey on the Conservation of Coal, in his paper read at the Spokane meeting of Mining Engineers in September 1909, says: "We are cognizant of the suits brought by the Government against the anthracite operators in Pennsylvania, or in combination of interests commonly known as the "hard coal trusts". No defense of any illegal combination in restraint of trade is intended, but there are some facts which should not be lost sight of, and unfortunately those whose opinions are based upon the news given to us by the daily press are likely to be governed by exparte testimony. The present situation in the anthracite region is one that has been developed through sheer necessity, if the conservation of the supply of anthracite and the prolongation of the life of the fields in the best interests of the people were to be attained in any other way than through Government control, and Government control did not seem to be materializing. I believe that a



good part of the history of anthracite mining has been one of profiligate waste in the mining, preparation and use of that precious supply of fuel; and this has only been remedied, none too soon, and could under the circumstances, only be remedied, by the close control and conservative management which has been brought about in recent years.

"And I might pause here to pay a merited tribute to such men as Dr. Raymond, Eckley B. Cox, P.W. Sheafer, Franklin B. Gowan, William Griffith, and a few others through whose efforts many reforms which lessened the waste of anthracite were effected. They were the pioneers in the battle for conservation and a monument should be erected to them.

Philadelphia and Reading Coal and Iron Company of the great coal reserves it owns today, was the beginning of a great movement which was foreseen by those in a position to see. The Reading Company was temporarily bankrupted through its guarantee of the debt thus incurred, but the possession and control of those lands are indirectly the most valuable assets of the railroad at the present time. More than this, however, in the ultimate economy of things, has been the preservation of thousands of acres of coal lands from reckless spoilation. The way was paved for the safe and sane control of the anthracite industry albeit by a trust, and a stop was put to the cutthroat competition and extravagant methods which in earlier years had resulted in losses of millions of dollars in money and more than millions of tons of coal.

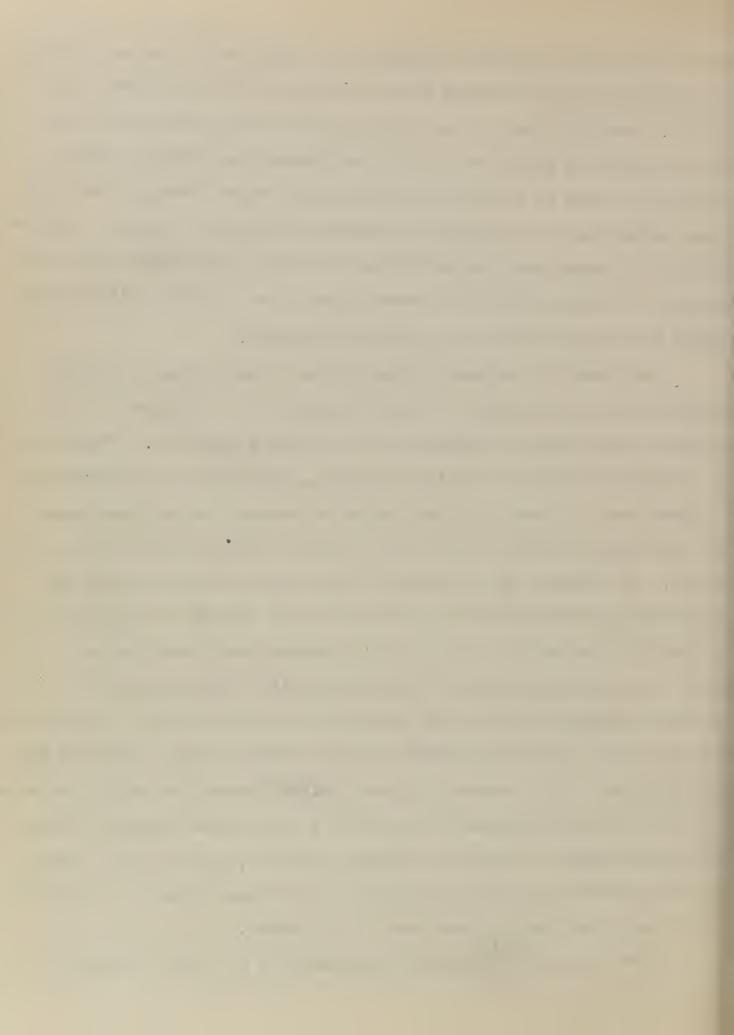
"Under former conditions in the anthracite regions, when it was not considered necessary to gave thought to the morrow, and



indeed up to the time when the Anthracite Coal waste Commission made its report, it was estimated that for every ton of coal mined and sold 1.5 tons were lost. The greater part of this loss was in the coal left in the ground as pillars to protect the workings, while millions of tons of small coal or screenings were thrown on the culm banks which now form unsightly mountains in the coal regions. Improved methods of mining and preparation have of late years reduced the percentage of waste so that at present (1909) the recovery will average about 60 percent and the loss about 40 percent."

Dr. Rosser W. Raymond, United States Commissioner of Mining Statistics, in his report to the Secretary of the Treasury on the present conditions and prospects of the mining industry, "The Mining of the West" chapter on mining education, Page 224, he foreshadowed in 1869 over 60 years ago, the lesson of economy in the development of our mining resources and in the reckless and wasteful mining operations. Dr. Raymond in the course of his paper on Conservation by Legislation delivered before a notable joint meeting of engineers held in New York, March 24, 1909 said, 'I remember well what Eckley B. Cox said to me, that salvation for the anthracite region and its store of natural resources, lay in the control of the collieries by capitalists who had other aims than immediate profit from the coal; and that the acquisition of such control by great railway companies, whose interest it was to make anthracite the basis of a profitable freight business for generations to come, was not only the best, but the only remedy for the reckless and irreparable waste which the system of 'hogging' the mines under short leases had brought about.

"Dr. Kaymond further added (speaking of Mr. Cox's prediction):

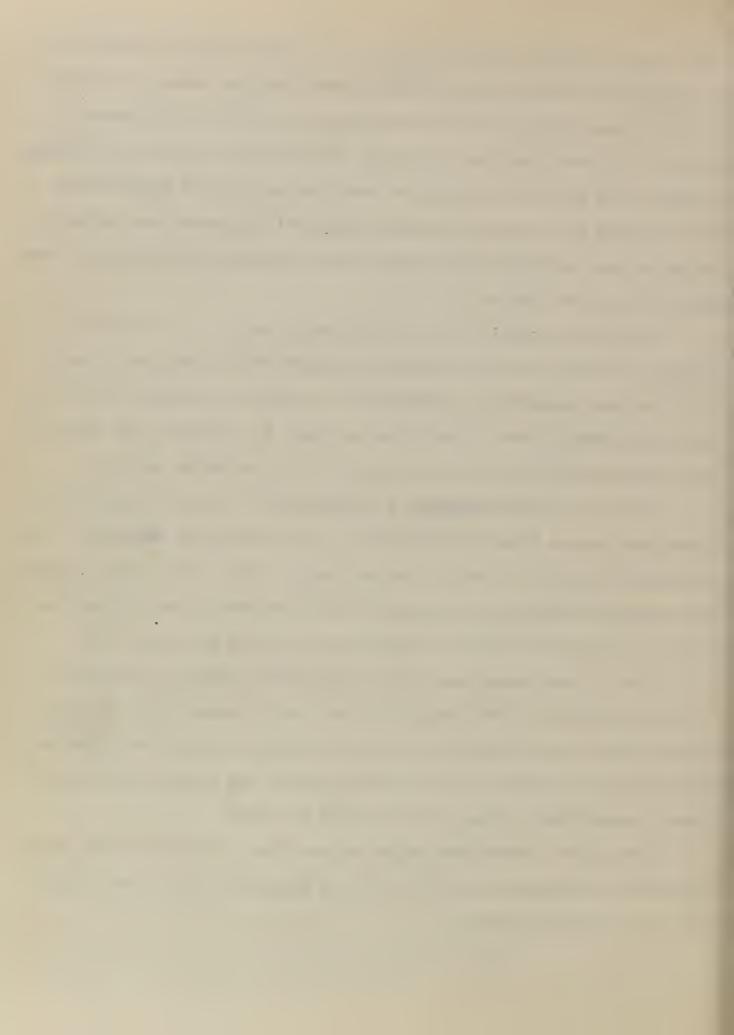


'The results verified his prophecy. The great railway companies operating the anthracite collieries have put more money into preliminary dead work and costly machinery have been the pioneers of national forestry for the provision of permanent supplies of mining timber; have enforced economy in every department of production; have trained and employed the most skillful engineers and experts; in short have redeemed from immediately impending rack and ruin the whole anthracite industry.'

"Whether, indeed, it is a profitable matter to attempt to imagine the state of the anthracite region 300 or 400 years hence with its coal practically exhausted, is open to question; but those who come atterus have a long time in which to consider the problem and we may safely leave it to them to solve in their own way.

In 1377 the Philadelphia & Reading Coal & Iron Company introduced coal waste from the collieries, for generating steem in their stationary boilers at their Reading Shops. More than 15,000 tons of this waste material was consumed during the year, thus taking the place of prepared coal at a considerable saving in cost. This utilizing of coal waste was such a pronounced success, that two locomotive engines were adapted to the use of waste coal as fuel. These engines performing so successfully, further applications of the plan were extended for a general use of the waste material for their locomotives on the main line and branches.

The first locomotive engine adapted for the use of coal waste completed its seventh year in coal and freight service covering in that time 183,904 miles.



SHIPMENTS FROM SCHUYLAILL REGION

1820 1821 1822 1823 1824 1325 1826 1827 1828 1829 1830 1831 1832 1833 1834 1835 1835 1836 1837 1838 1839 1840 1841	1,480 1,128 1,567 6,500 16,767 31,360 47,284 79,973 89,984 81,854 209,271 252,971 226,692 339,508 432,045 530,152 446,876 475,077 490,596 624,466	1845 1846 1847 1848 1349 1850 1851 1852 1853 1854 1855 1856 1857 1858 1859 1860 1861 1862 1863 1864 1865	1,131,724 1,308,500 1,635,735 1,733,721 1,728,500 1,840,600 2,238,525 2,636,835 2,665,110 3,191,670 3,552,943 3,603,029 3,373,797 3,273,245 3,448,708 3,749,632 3,160,747 3,372,583 3,911,683 4,161,970 4,356,959 5,787,902	1870 1871 1872 1873 1874 1875 1876 1877 1878 1879 1880 1881 1882 Total	4,851,855 6,5 s 2,772 6,694,890 7,212,601 6,866,877 6,281,712 6,221,934 8,195,042 6,282,226 8,930,829 7,554,742 9,253,958 9,459,288 183,207,360

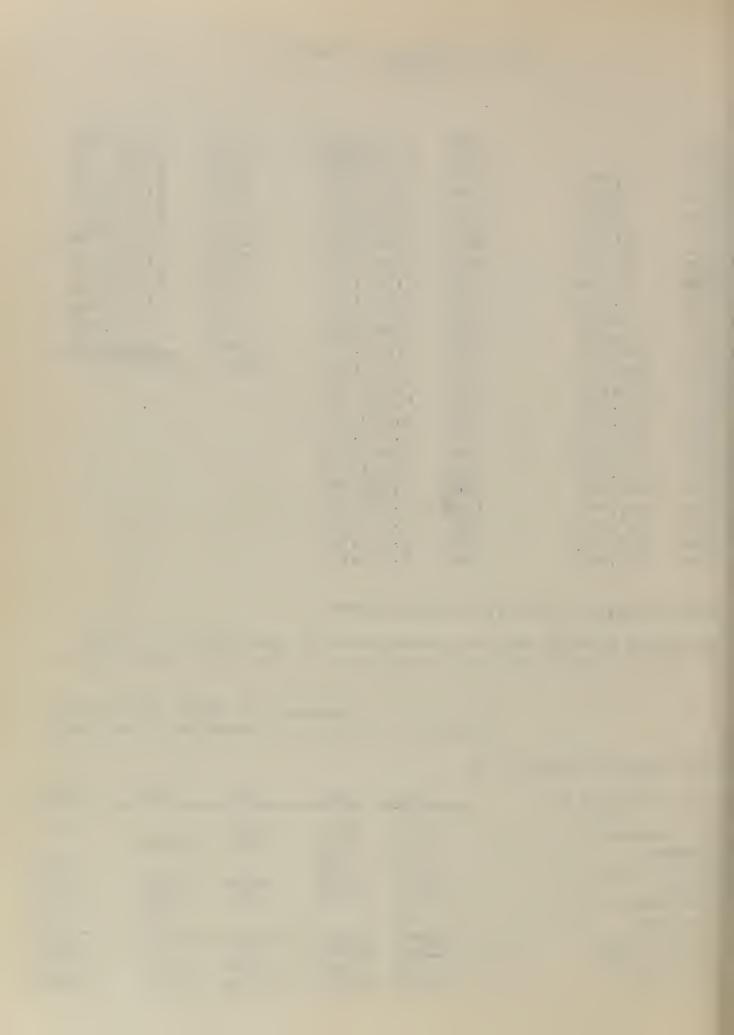
Distribution of Coal from Port Richmond

Statement showing the coal transported by the P.& R. R. R. to Port Richmond and its distribution to the States and Counties.

> -Bannan Coal Trade Statistics Furnished by Thos. M. Richards, Ship. Agent.

Year ending November, 30

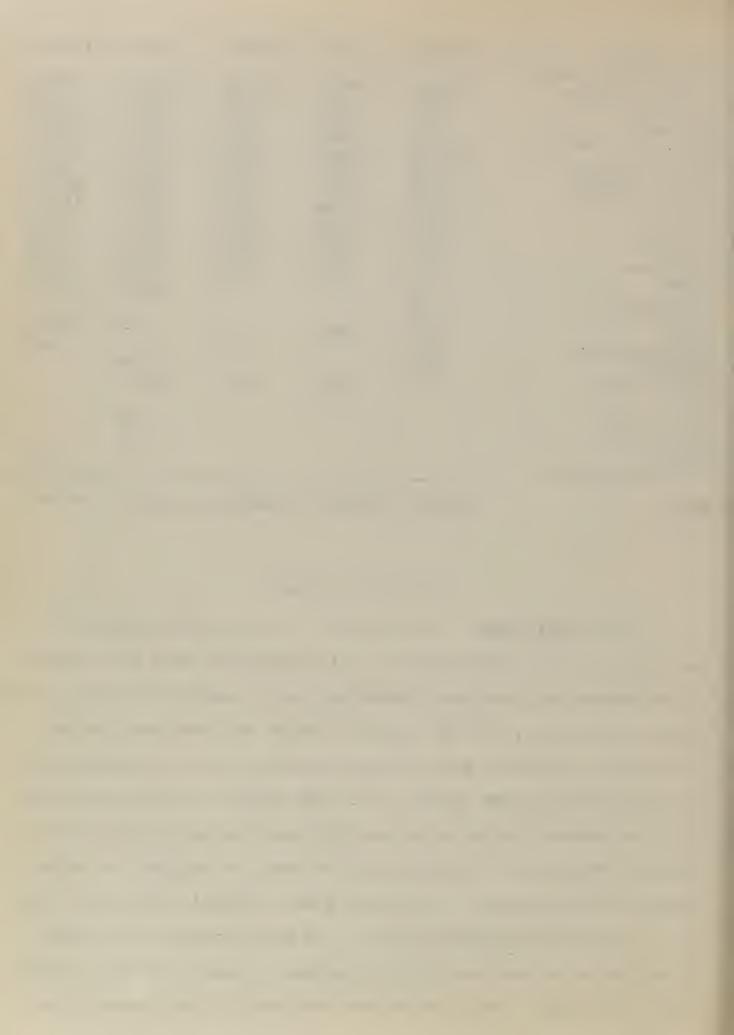
Port Richmond to	1869	1870	1871	1872	1873
New Brunswick	5582	6987	8238		7772
Canada	1551	1370	4713	14809	
Nova Scotia	1677	238			1724
Maine	81246	61181	86092	85705	100633
New Hampshire	37433	25623	40000	37866	49607
Vermont	334			1758	850
Massachusetts	878944	785170	908410	1022878	997836
Rhode Island	145401	111662	179370	134111	142433
Connecticut	100156	56419	92500	47618	74931
New York	611457	390576	525240	359353	359892



New Jersey	140630	126473	150280	112749	106202
Pennsylvania exclu-					
sive of Phila.	206693	195237	191896	198375	150046
Delaware	12237	15576	13403	12132	8093
Maryland	4377	7955	2799	11687	22803
Dist. of Columbia	59608	73471	56875	77560	101387
Virginia	49827	45244	38624	119139	85519
North Carolina	4361	3070	3751	6728	6392
South Carolina	9382	14974	10304	13052	11402
Georgia	7327	11740	8625	11700	10717
Florida	4057	3396	1364	5533	7330
Alabama	2990	2821	5346	4288	1995
Louisiana	1355	2936	6625	1863	1534
Texas	422	1190	1196	1658	3834
California	1043			3714	1205
Alaska	1120				
Cuba	3348	2932	262	150	7613
South America	2553				421
Mexico	1380			900	
West Indies	1123	3529	7055	14014	
Hayti		700			
Mississippi				428	
Porto Rico				10	
England				65	
Sandwich Islands					722
TOTALS	2378078	1951467	2343026	2299845	2266893

GEOLOGICAL SURVEY

In the early days of mining there was very little known of the geology of the Coal Region. It is true there were a few experienced miners who came from abroad who had a slight conception of the basins and saddles, but the general opinion was that each outcrop of coal was a separate vein and was believed not to extend much below the surface of the ground. Mr. John Beadle, an Englishman employed as manager at the Gate Vein Colliery located at Centre and Nicholas Streets in Pottsville was the first to suggest the undulations of the measures. In Bannan's and Daddlow's Coal, Iron and Oil, is given the following facts; "It may be justly stated that an English miner was the first to suggest a theory for the repetition of the veins. The first sketch ever made of the undulations of



the Anthracite measures was made by Mr. John Beadle, then managing the Old Gate Vein Colliery at Nicholas and Centre Streets for man and Williams on the walls of the Mine Office; and the sketch remained on the walls of the office for years and was often discussed and observed by many who since claim for themselves the credit of originators. Although the rough chalk sketch alluded to did not attempt a correct deliniation, it still presented the suggestion which has since been developed in fact".

Mr. John Beadle was evidently one of the few exceptions noted later in J.P. Lesley's Historical Sketch of the Geological Explorations. As mining increased and capital was invested, it became apparent that explorations must be continued and a better knowledge of mining possibilities developed. Messrs. Potts and Garragues began to sink below the surface and prove the basins that were now generally accepted. The sinking of this slope proved the soundness of the theory of the undulation and later slopes were sunk in several places. This new venture attracted the attention of capitalists and finally the Pennsylvania State Legislature became aware of the importance of a geological survey, and on March 29, 1836 passed an act appointing a survey of the state and authorizing an annual appropriation of expenditures of 40400 for five years, to pay the salaries of a geologist, two assistants and a chemist. Professor Henry D. Kogers was appointed geologist, Mr. James C. Booth and Mr. John F. Frazer, assistants and Dr. Mobert E. Rogers, Chemist.

Extracts from Historical sketch of Geological Explorations by J.F.
Lesley.

[&]quot;The first season's field work sufficed to make known with



certainty the geological order of the rocks of middle rennsylvania; and on this determination, as a sure foundation, all subsequent work in the Appalachian Mountain belt of the Atlantic States was based.

Historical sketch - Second Geological Survey - A-P53.

"The second year of the geological survey was 1837.

"The Act of Legislature of March 29, 1836 was amended in the Spring of 1837 by enlarging the appropriation to allow four assistants. These were Mr. Samuel S. Halderman, Mr. Alexander McKinley, Mr. Charles B. Trego and James D. Whelply - A-P56

"The expense of the first year had been but #2700.

Those of the second year amounted to 46500.

"The third year of the Geological Survey was 1838.

"The corps was increased and the expense rose to 412,000. In 1838 was a year of great revelations in the history of coal geology. The identity of the anthracite and the bituminous coal measures was demonstrated beyond a doubt although most, if not all, English geologists still persisted in calling the anthracite an older formation. And a long stride was made toward the actual recognition of the same individual coal beds at Pittsburgh and Pottsville.

A-P 77.

"In the preceding year, 1837, sufficient notice had been taken of the small crest waves (anticlinal) which traverse the anthracite region, and separate the small trough waves (synclinals) from one another. Mr. Whelply had begun to trace and map them all.

"In 1835, he got the axes or central lines of these waves into their places on his map and showed how they passed through one mountain after another; how they bent the straight mountains into hooks; and how they crossed the red shale valleys of Xl and passed through the mountains of X into the open country of VIII - A P73. It is not



unfair to the geologists of the Old world to say that topographical geology was born in Pennsylvania in 1838. As there is but one such anthracite coal field nown in the world, so there is no field of investigation for the topographical geologist so perfectly adapted in all respects for suggesting at sight, the principals of his branch of science. Topography was master of the situation. Whelply constituted himself thus the first perfect topographical geologist our science had. Mr. whelpley's map of the southern and middle anthracite coal fields was one of the most important contributions to physical science ever made, in any country. Its eminent qualities can be appreciated only on reflection that it was not only topographical, but geological; and it was accomplished by himself alone, in the infancy of geological science. A-P80

"The fourth year of the survey was 1839.

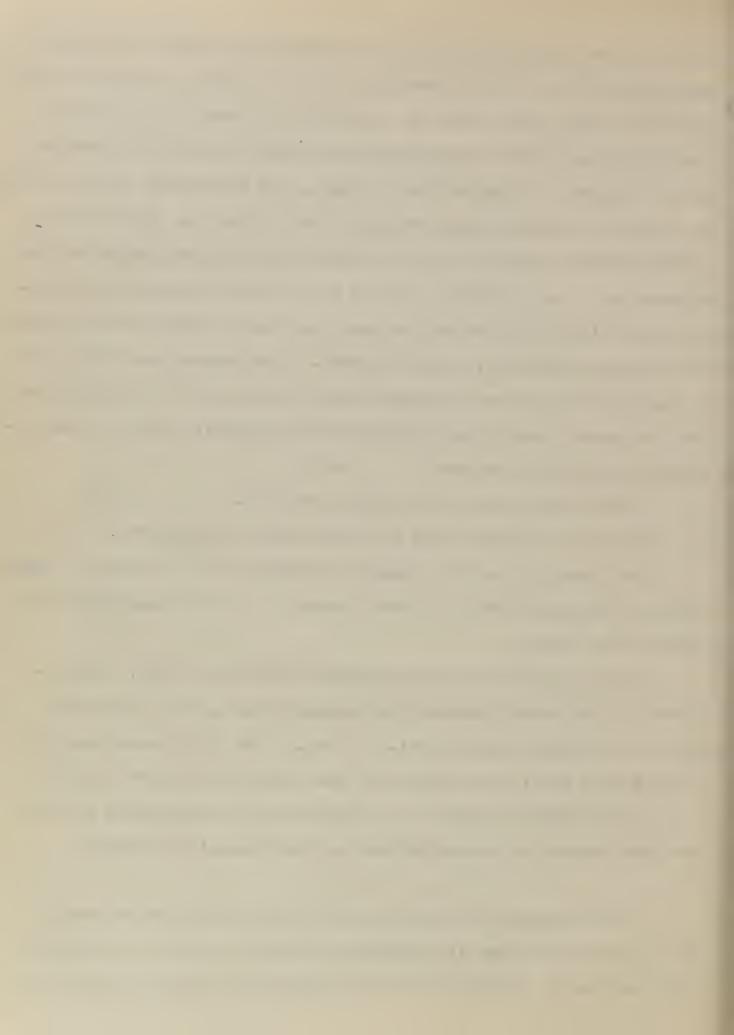
"The cost of the survey in 1839 amounted to 415,991.

"Mr. Whelpley and Mr. Sheafer resigned and Dr. Andrew A. Henderson of Huntington and Mr. Peter Lesley, Jr. of Philadelphia were added to the corps.

"The fifth year of the geological survey was 1840. The expenses of the survey reached the maximum of \$\pi 17,800\$. The sixth year of the survey was in 1841. (A PlO6.) The field work came to a close this year; the expenses of the survey falling to \$\pi 12,675\$.

"The winter of 1841-42 was passed by the Legislature without the usual amount of appropriation for the geological survey".

"Great indeed must have been the "financial embarrassment" of a Commonwealth when its economies descend so low as to decline such inexpensive appropriation for securing the continuation of a



national enterprise and for reaping from it a national benefit. The mines of the state were (with some most honorable exceptions) bossed by the commonest miners from foreign and quite different geological regions; who suddenly exchanged the character and position of hewers of coal and pumpers of water at home for the character and position of Mining Engineers in America. Ignorant, undisciplined, obstinate, narrow-minded and superstitious by nature and habit, and rendered presumptious and dogmatic by their strange advancement, they were unwilling to accept as they were unable to acquire knowledge of our geology so different from their own, and hated the professional geologist because they had never lived in childhood, pick in hand, underground; because they taught new things hard to comprehend and because they denied the propriety of mining the coal of Schuylkill County on the plan of the collieries of South W les, or employing the ancient methods of the Cornish tinworks to the brown hermitite banks of the Lebanon Valley.

"The jealousy of professional and theoretical interference with tradition and practical usages, which had not yet quite disappared from the mining region, was in 1842 in all its vigor; and was shared by the landed proprietors, the directors of companies and the General Superintendents of collieries and miners with a wave of suspicion and dislike pushed before it by the first geological survey through its whole progress, brought it at last to a dead stop".

"Mr. P.W. Sheafer who was on the staff in 1337 resigned in 1839 and resumed his private engineering work. "In 1850 the subject of the publication of the fruits of the first survey was discussed by a number of gentlemen among whom Mr. William Parker Foulk of Philadelphia was the most prominent. With the aid of Mr. Peter ...



Sheafer of Fottsville, these gentlemen succeeded in representing the case so forcibly, that the Legislature was induced to appoint a joint committee of both houses, of which Colonel Bigham was chairman to consider the subject of an appropriation to cover the estimated expense of publication.

"In 1851 the Legislature appropriated \$32,000 for the survey and the field work of the first geological survey of Pennsylvania re-commenced. Mr. F. W. Sheafer having settled permanently in Pottsville, had become the principal local geologist and mining engineer of the region, and now knew more about its geology than anyone else, took charge of the underground work. Mr. John Sheafer took charge of the Transit and Level party. Long straight transit lines were leveled and staked from side to side of each coal field at intervals of 2000 ft. Longitudinal lines were then run, tying the cross lines together, with these Mr. Sheafer connected every gangway, mouth, shaft, slopes and test holes which then existed and carried his surveys along these underground passages." A P 122-125.

The final report of the Geological Survey of Pennsylvania was made by Henry Darwin Rogers, State Geologist and was published by J. B. Lippincott of Philadelphia in 1858.

The Second Geological Survey of Pennsylvania

The southern field is most advantageously situated as to truewater markets; it is only some 93 miles from Pottsville to Philadelphia with gentle and favorable grades all the vay. This was one of the first basins to be developed and for a number of years between 1825-1850 it product exceeded that of any of the upper divisions; but as it became known that the coal beds of other fields, generally, contained less refuse and were more re-



liable, its relative production grew less and it now stands (1380) at the foot of the column. The exhaustion of the cheaper mined coals in the other basins will no doubt in time place the southern field by reason of its great and enormous coal content, once more in the front rank. P 2075 - Final Report 2nd Geological Survey.

The Second Geological Survey was authorized by Act of Legislature passed May 14, 1874 and the final summary report was published in 1895.

geology owes it consistency and completeness to the frequency with which every part of the state was gone over, not only by the same but by different members of the corps. Not a shadow of doubt or suspicion of grave mistake was left attached at the end of 1841". As a consequence, the assistants of 1874 remarked with astonishment and pleasure how perfectly trustworthy the map and reports of 1858 are and so far as they pretend to represent what twenty six years ago could be observed.

The report of the First Survey of Pennsylvania in this respect, stands quite by itself among American publications of its class and date.

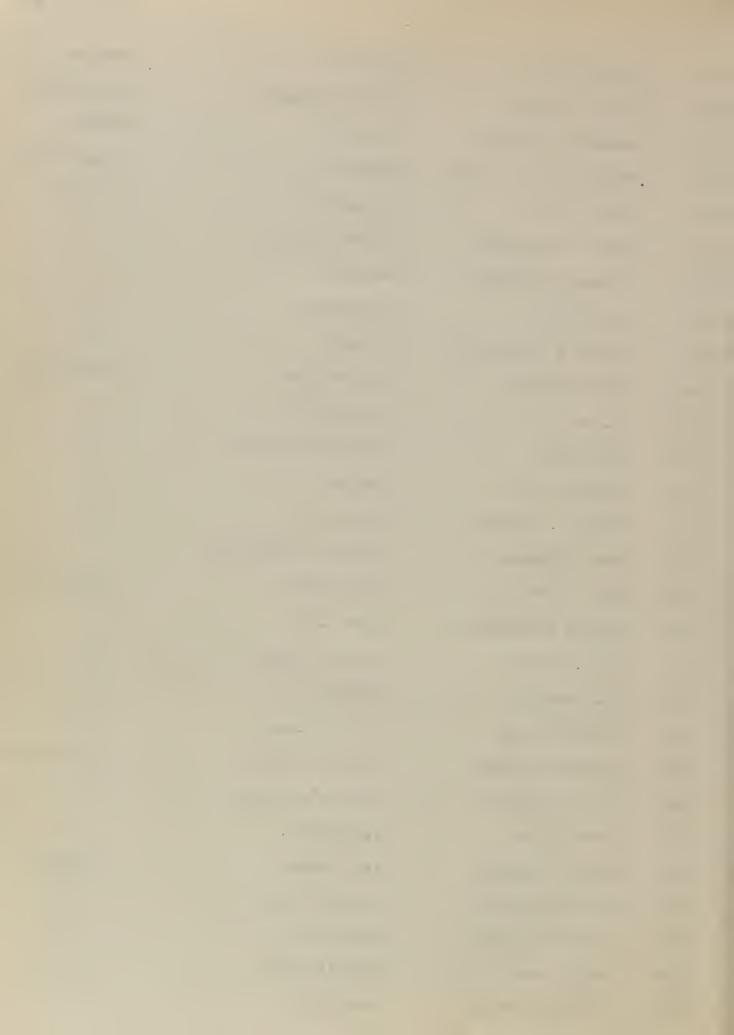
(A-P107)

PAILURED OF OPERATORS IN THE SOUTHERN COAL FILLD

YEAR	OPERATOR	COLLIFRY	K ASON
1825	John white	West Delaware	railed
1829	Peter Aurand	Belfast	11
1831	Wheeler & Merritt	Phoenix Tunnel	11



1832	Bolton & Co.	Belfast	Failed
1835	Daniel Rhoads	Valley Furnace	Sheriffed
1836	Bennett & Walton	Oak Hill	railed
1838	Neligh, Bull & Lewis	Nammoth	Sheriffed
1340	Samuel Lewis	Greenwood	Failed
1840	Toten & Wholons	Silver Creek	11
1840	Turner & Whitney	Belmont	11
1841	Jos. Kunkle	Ravensdale	tt
1341	Hudson & Finkerton	Hickory	î t
1842	North America	Centreville	Cherisfed
1343	Van. Man	Beechwood	tř
1844	mcAlarney	LcAlarney Tunnel	tī
1844	Kichard Kear	Orchard	11
1344	James C. Oliver	Westwood	tt
1344	John Afferman	Phoenix Pesch Mtn.	11
1844	Chas. Lawton	Mill Creek	Failed
1844	ralmer & Garagues	Bear Kidge	11
1844	Thos. Fitch	Silver Creek	tf
1844	Wm. Lawton	Peacock	tt
1344	Caleb Parker	Silver Creek	tī
1545	Goodman Dolbin	Patten Valley	cheriffed
1845	Jacob Serrill	Serill's Tunnel	ft
1845	John Flatt	Feach Mtn.	tt
1845	Thos. Ridgway	Lee Lands	r'ailed
1845	.m. Bosbyshell	Silver Creek	11
1845	Thos. Williams	Beechwood	П
1845	Henry Wren	Middleport	n
1845	Charles Lawton	Donaldson	tī



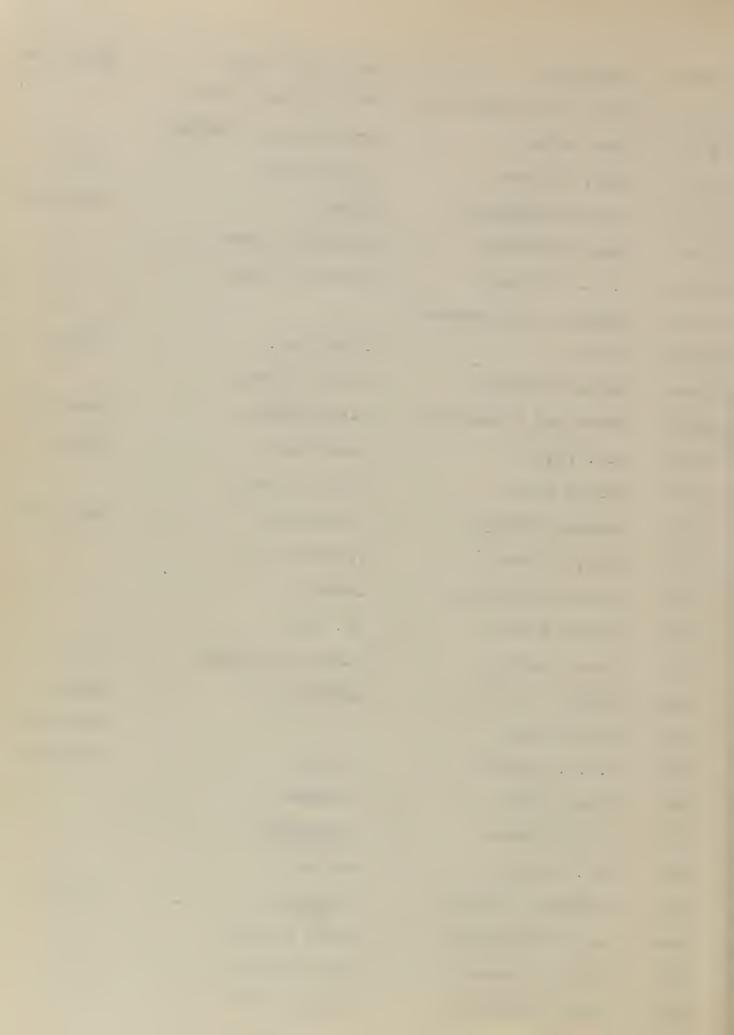
1845	Jos. Lyons	Lyons Drift	railed
1845	Abraham Pott	Fort Carbon	11
1845	wm. wallace	Cumbola	tt
1346	John Ogden	Westwood Gap	sheriffed
1846	Hewes & Baber .	magle Hill	railed
1346	Chas. Lawton	reacock	tf
1847	John & Thos. Wood	westwood	11
1847	Aquilla bolton	Silver Hill	tt .
1847	Hugh Kinstey	Wilford	II .
1347	Chas. Lawton	Ball's Peach Ltn.	tt
1848	Clayton & McGinnis	Gate	Sheriffed
1848	Pott & bannan	Guinea Hill	Failed
1348	George Potts	York Farm	11
1849	E.W. McGinnis	St.Clair Shaft	11
1849	Abraham Heebner	Silver Creek	Sheriffed
1850	Henry Heil	Mt. Lagle	17
1850	Jos. Lawton	Mammoth	tt
1850	Dr. Steinberger	sharp Mtn.	Sheriffed
1350	Jos. Taylor	Diamond	11
1850	Jacob Hoffman	Silverton	Failed
1350	Milnes & Maywood	Westword	11
1850	Oliver & Beechem	Beechem's Tunnel	11
1850	Haywood & Snyder	Mill Creek	Ţt.
1850	James C. Oliver	Bear Ridge	Sheriffed
1850	Milnes & Haywood	Salem & West West	railed
1350	Chilas	Junction Drift	ff
1850	Dr. Steinberger	Melford	Sherin'fed
1350	Dr. Steinberger	sharp Mtn.	TI .



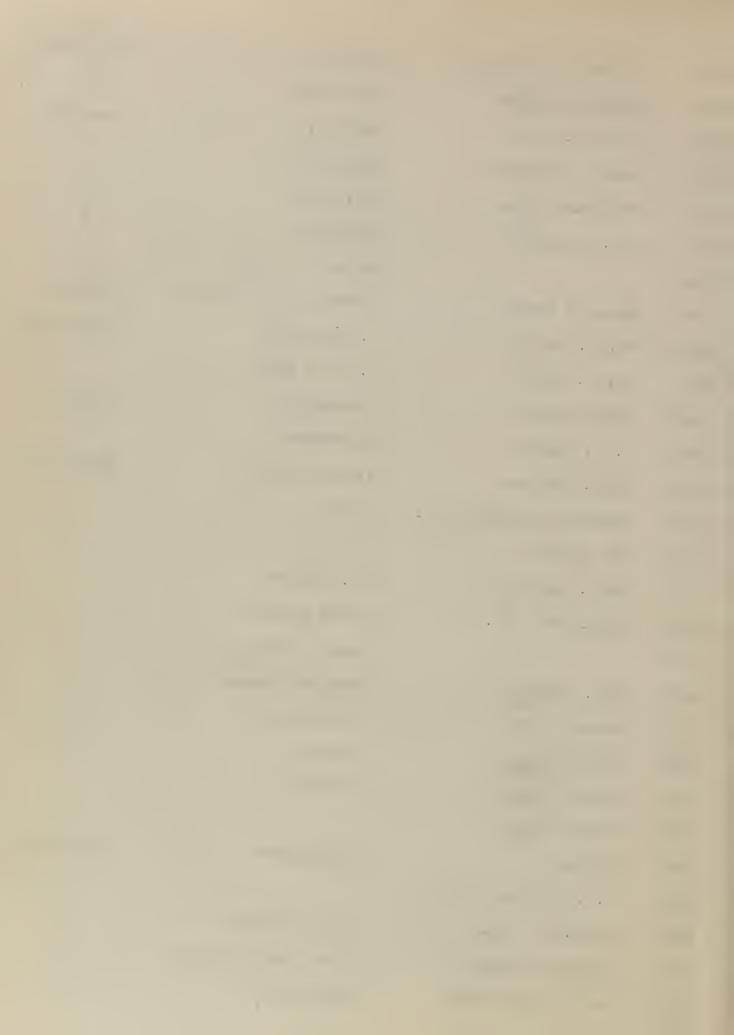
1851	Henry Strong	Lorberry	Sheriffed
1851	Um. Donaldson	Themont Mines	II
1351	Chas. Keinhold	Colket	11
1851	Snyder & Bar	Tremont	tı
1851	Patten Brothers	Primrose	tt
1851	Oliver & Beechem	Tuscarora	tt
1851	Bennett & Erdman	Woodburn	Failed
1851	James Fitzsimmons	New Phila.	tt
1851	Chas. Lawton	Chamberlain	11
1851	Job Rich	Woodburn	tt
1851	Clayton & McGinnis	Gate Vein	tt
1851	Tuscarora Co.	Tuscarora	Sheriffed
1851	Wm. Dewey	Dewey Tunnel	Failed
1852	Dr. Steinberger	Middleport	Sherif ed
1352	Geo. Deb. Meim	Lee Lands	tt
1852	Jos. Lawton	Repplier	Failed
1852	Jos. T. Taylor	Diamond	II
1853	M.G. & P. Heiliner	Black Valley	Sheriffed
1353	M.G. & P. meiliner	reach atn.	tt
1853	M.G. & P. Heiliner	Westwood	Sheriffed
1853	Richard Jones	Oak Hill	Failed
1853	Wm. & John Payne	Paynes Tunnel	tt
1853	Bainbridge	Chamberlain	Sheriffed
1853	Thos. Haven	tı	11
1853	Anthony Steinberger	Middleport	īt
1854	Bettinger	Dundas No. 6	11
1854	Lverts	Everts Tunnel	tt
1854	Jacob Serrill	Serrills Tunnel	tt



1854	Bettinger	Bettinger Slope	Sheriffed
1855	Thos. Christopher	Port Carbon	11
1855	Oscar Moore	Bear Ridge	t†
1855	Thos. Pollock	Feeder Dam	Pailed
1855	Gus Shollenberger	Novelty	Sheriffed
1855	John Shouthers	Tuscarora Lands	11
1855	M. G. Heiliner	Mine Hill Gap	п
1855	Dauphin & Susquehanna		П
1856	Price	Peach Mtn.	Failed
1856	Shultz Brothers	Shultz Tunnel	11
1857	Montelurs & Whitfield	Windy Harbor	Sheriffed
1857	Geo. Potts	York Farm	Failed
1857	Harper & Rex	William Penn	11
1857	Brooke & Burey	Branchdale	Sheriffed
1857	Buery & Buery	Primrose	11
1857	pritton Brothers	Lewis	11
1857	Harper & Kex	Wm. Penn	11
1858	Segar Chadwick	Middleport Shaft	2.8
1858	Buery	McDonald	Failed
1859	Union Canal		Sheriffed
1859	R.H.F. Horton	Colket	heriffed
1859	Henry Eckel	Tremont	11
1859	Martin Weaver	Branchdale	tt
1859	Geo. Rickert	Oak Hill	II
1859	Lawrence O'Brien	Middleport	Failed
1859	Koger Sinnickson	Kaska william	II
1859	Francis Spencer	Lewis Shaft	11
1859	James Fitzsimmons	Flowery Field	11



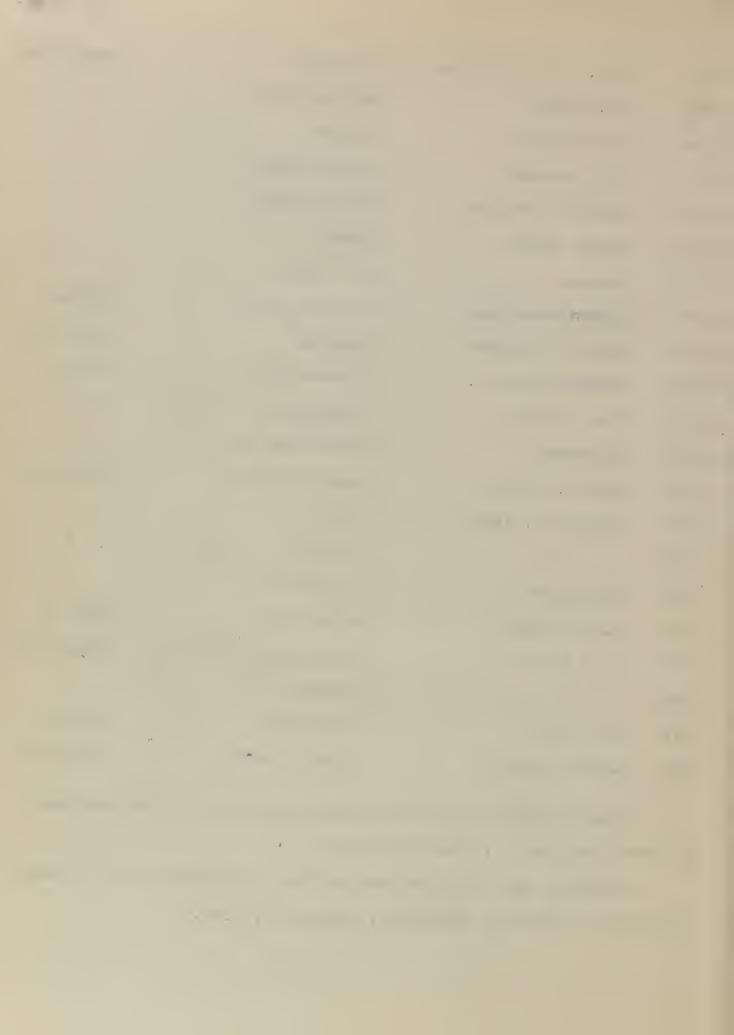
1859	Dorman & Whitfield	Oakland	Fail.
1859	Samuel Sillyman	Big Creek	11
1860	Henry Strong	Lorberry	Sheriffed
1860	Samuel Sillyman	Westwood	8.8
1860	Benjamin Tyson	Silverton	11
1860	Geo. Repplier	Repplier	11
1860	11	Lewis	11
1860	Mason & James	Flowery Field Tunnel	Failed
1861	Wm. C. Smith	E. Pine Knot	Sheriffed
1861	Wm. C. Smith	W. Pine Knot	11
1862	James Carter	Greenwood	Failed
1862	J. K. Smith	Tuscarora	11
1862	Benj. Bullock	Peach Orchard	Sheriffed
1866	Pottsville Mining Co.	Lewis	11
1867	wm. Saylor	Monitor	11
1867	Kobt. Katcliff	wt. Laffee	ΙΙ
1867	Starr Coal Co.	Windy Harbor	n
1867	11	Ledger Vein	11
1867	Jos. beechem	Beechem Tunnel	18
1867	James Oliver	Silver Creek	11
1868	Levi Spangler	Eureka	11
1868	±ten & Tomison	West End	11
1868	Albert Eckel		11
1868	Dutter	Marshfield	Sheriffed
1868	N.Y. & Sch. C. Co.		TI.
1868	Chas. M. Hill	Black Valley	11
1868	Jonathan wright	Black Heath Tunnel	11
1868	Wm. & James Koher	Mohersville	11
2.000			



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Royalties paid by the collieries operating on the Lee Lands situated north of St. Clair Borough:

Shipments and royalties copied from the books kept by Samuel Huntzinger and Samuel Wetherell, August 14, 1843.:



Beck and Woodside Colliery

1829-1852

- 79,205 bu. coal) Moyalty 1,067 tons ") %2178.27

rrederick M. Mass & Company

1850-1832

- 114,215 bu. coal) Koyalty 953 tons ") 2950.65

Maximillian W. Wythoff

1831-1832

- 18,189 bu. coal 2,311 tons " 17 " " 2,003 " "

) koyalty) \psi 2046.38

John Flannigan

1830-1832

- 12,018 bu. coal) Royalty 267 tons ") 7549.09 611 " ")

Henry C. Lyon

1831-1852

- 5,004 bu. coal 257 tons " 488 " "

) Royalty) \$388.43

Craven & Beach

1829

- 21,696 bu. coal) Royalty \$379.68

Jacob H. Fisher

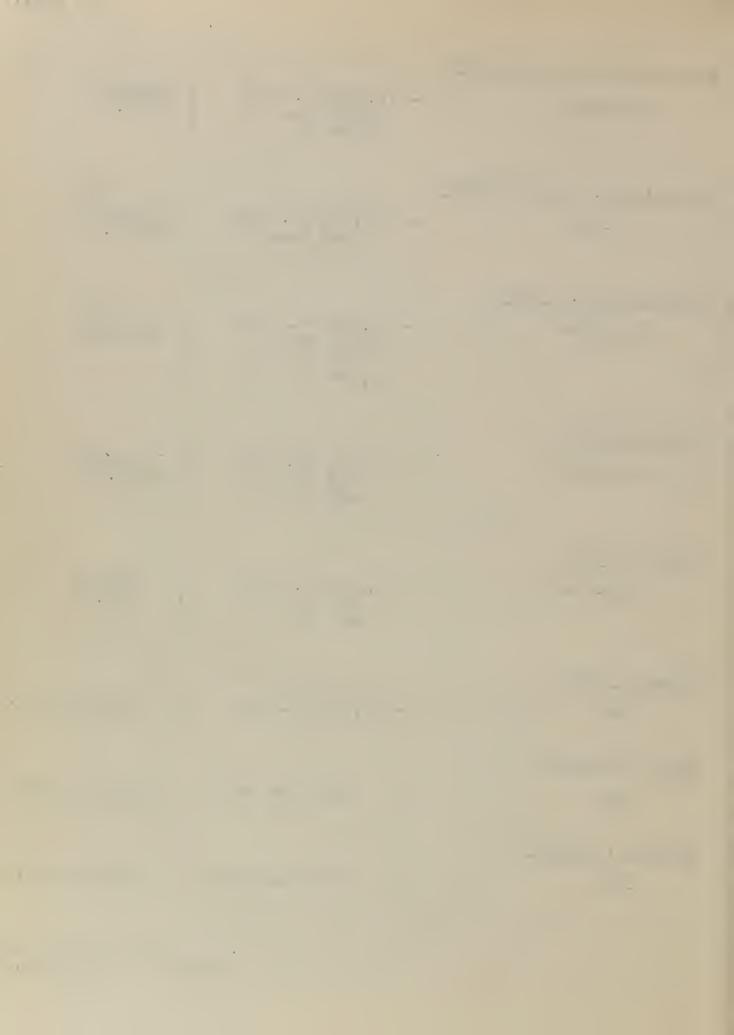
1832

342 tons coal) hoyalty w143.79

Thomas S. Ridgway

1832

141 tons coal) Koyalty \$9.48



For the year 1850, John ". Wetherill received \$59,432.54 moyalty from 188,350 tons of coal mined from the Lec Lands. The average rent was 31 cents.

Future Development of the Anthracite Coal Field.

The consentration of interests has been the policy of the large corporations in connection with the mining and preparation of coal. Large breakers are replacing the numerous small breakers.

One large breaker now does the work formerly done by the number of small ones.

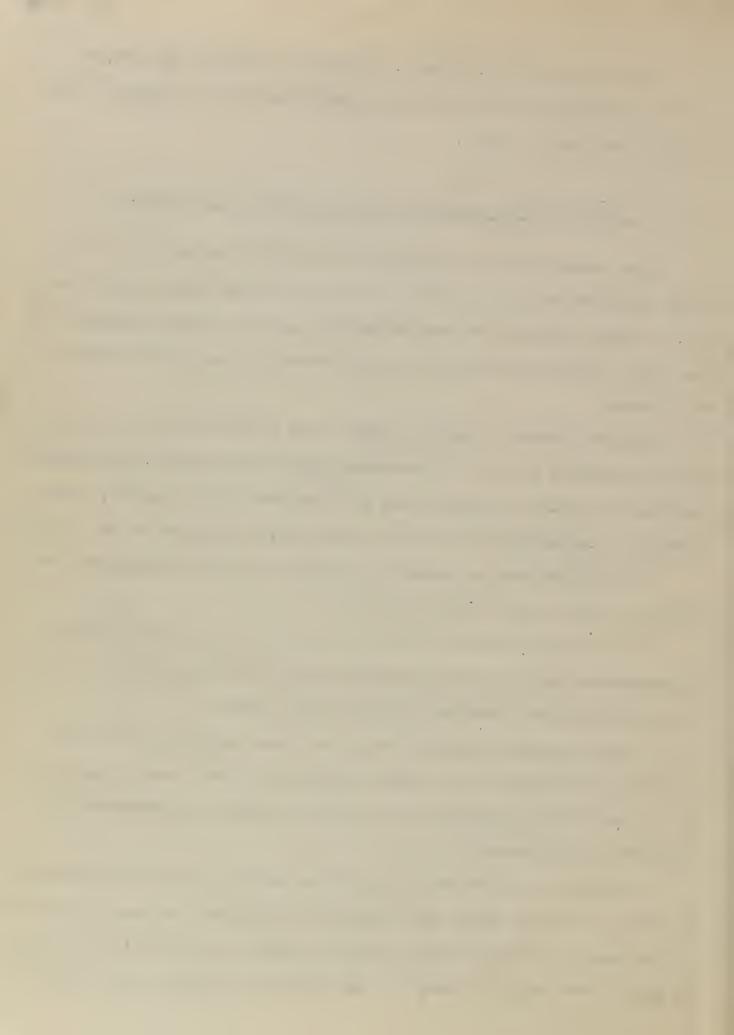
Boiler plants of modern design have replaced the old cylindrical boilers formerly in use in scattered individual plants; and central pumping and drainage tunnels are now draining whole basins, where formerly a large number of small plants were required to do the work.

This concentration naturally tends to better management and a saving in fixed costs and in labor.

The electrification of many collieries is a still economic consideration in replacing in many cases, the steam plants with the accompanying labor troubles in the boiler plants.

These economic measures have been made necessary from the fact that there has been a steady increase in the cost of production of anthracite coal while there has not been a corresponding increase in the demand for it.

In 1880 royalties were from 20 to 25 cts. per ton for prepared sizes. In many cases the sizes below thestnut was not considered, as the small demand for these sizes at that time was not sufficient to market the supply produced. The surplus for many years later



was thrown on the refuse banks. Royalties are now from 40 to 50 cts. and in some instances even higher for prepared sizes above Pea with Pea 25 cts. and from 10 to 15 cts. for sizes below Pea.

In 1877 the average number of days worked in a year was 205.

In 1897 it was only 152 and at present the Philadelphia and Reading

Coal and Iron Company (one of the largest producers) operating days

of these collieries was 187.

The cost of opening a colliery in the eighties was from \$\,\text{100,000 to \$\,\text{400,000}\$. Now it requires an outlay of capital treble this amount.

In former years coal did not then have to be so clean and exact in sizing as now, from 12 to 15 per cent of bone being allowed in Chestnut and 8 to 10 per cent in stove as against 1 1/2 % slate and 3 1/4 % bone in Chestnut at the present time.

Hence at present a large percentage of the product which was formerly salable must be thrown upon the dump.

"In 1887 the average breaker output was 500 tons with a maximum of 1,800 to 2,000 tons while in 1397 the average of all breakers was 800 tons aday with a maximum of 2,600 tons and over, which maximum has been increased to 3,000 tons in 1900, while the complete cost of equipment of a colliery in the latter year was probably ...700,000.

In 1880, 88 per cent of the coal sold was of the size which sold at a profit, while in 1897 only 70 per cent of the total sales were of profitable selling sizes.

In 1877, 38 per cent of all coal mined was grate and larger sizes which required practically no crushing or preparation for sale.

By 1887 this amount had decreased to only 26 per cent. In 1897 it



was 15 per cent".

"Extracts from U.S. Geological Survey 1900-1901 by H.H. Stocks

With increasing cost of production and a declining market for Anthracite Coal, with the demands of labor and high freight rates, with the invasion of cheaper competitive fuels, and the cost of electric power diminishing yearly, it appears that a point will be reached when it will be unprofitable to mine Anthracite Coal, unless something in the future now unforeseen will cause lower costs of preparation and transportation that will allow an extended market for the coal trade.

In the early days of mining and as late as the seventies the market for anthracite coal included both North and South America, but its market has been so curtailed that at the present time it has practically been reduced to the Lake trade and to an area within a radius of approximately 300 miles. In all probability the market will still further be restricted to the immediate area surrounding the Anthracite Coal Fields.

